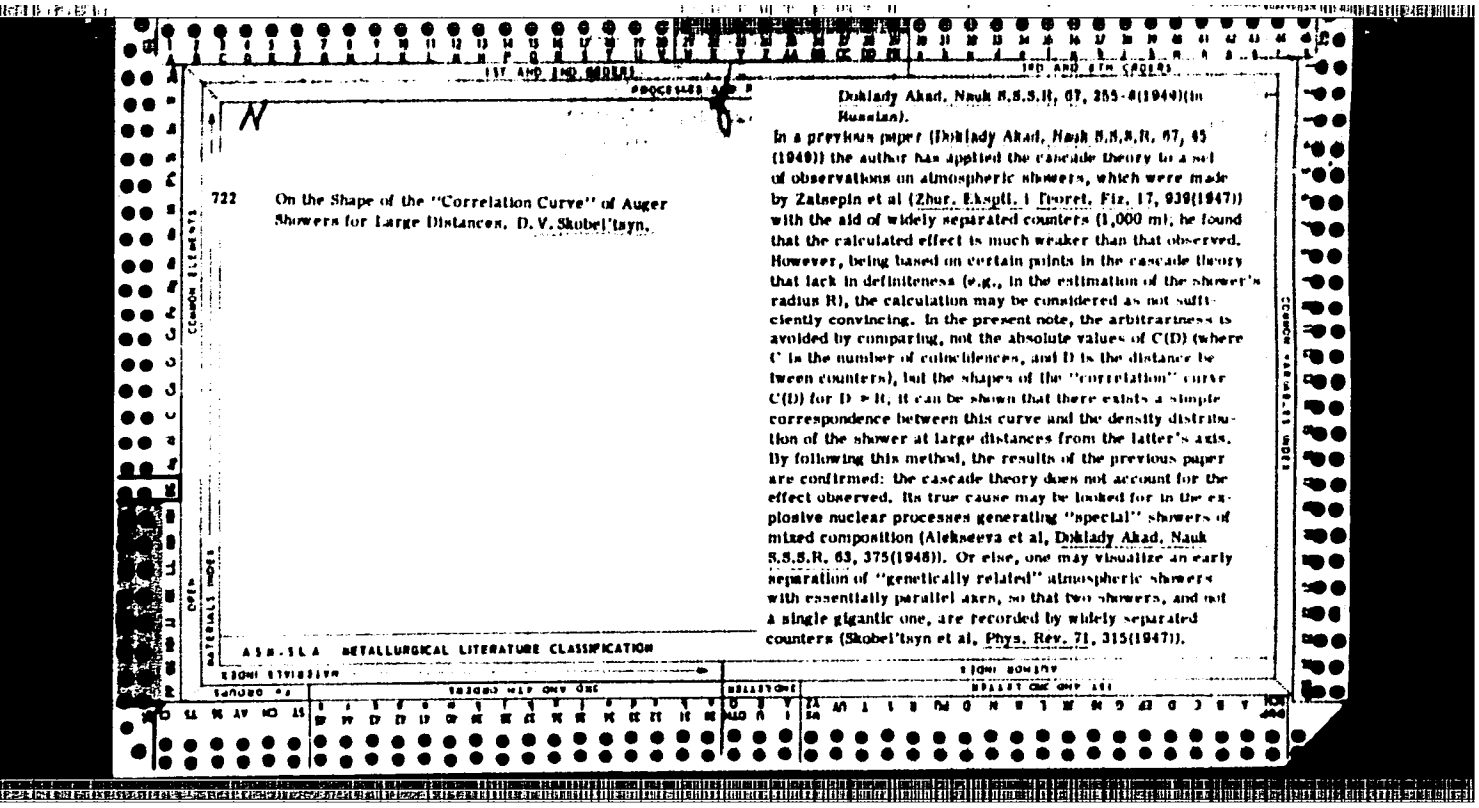
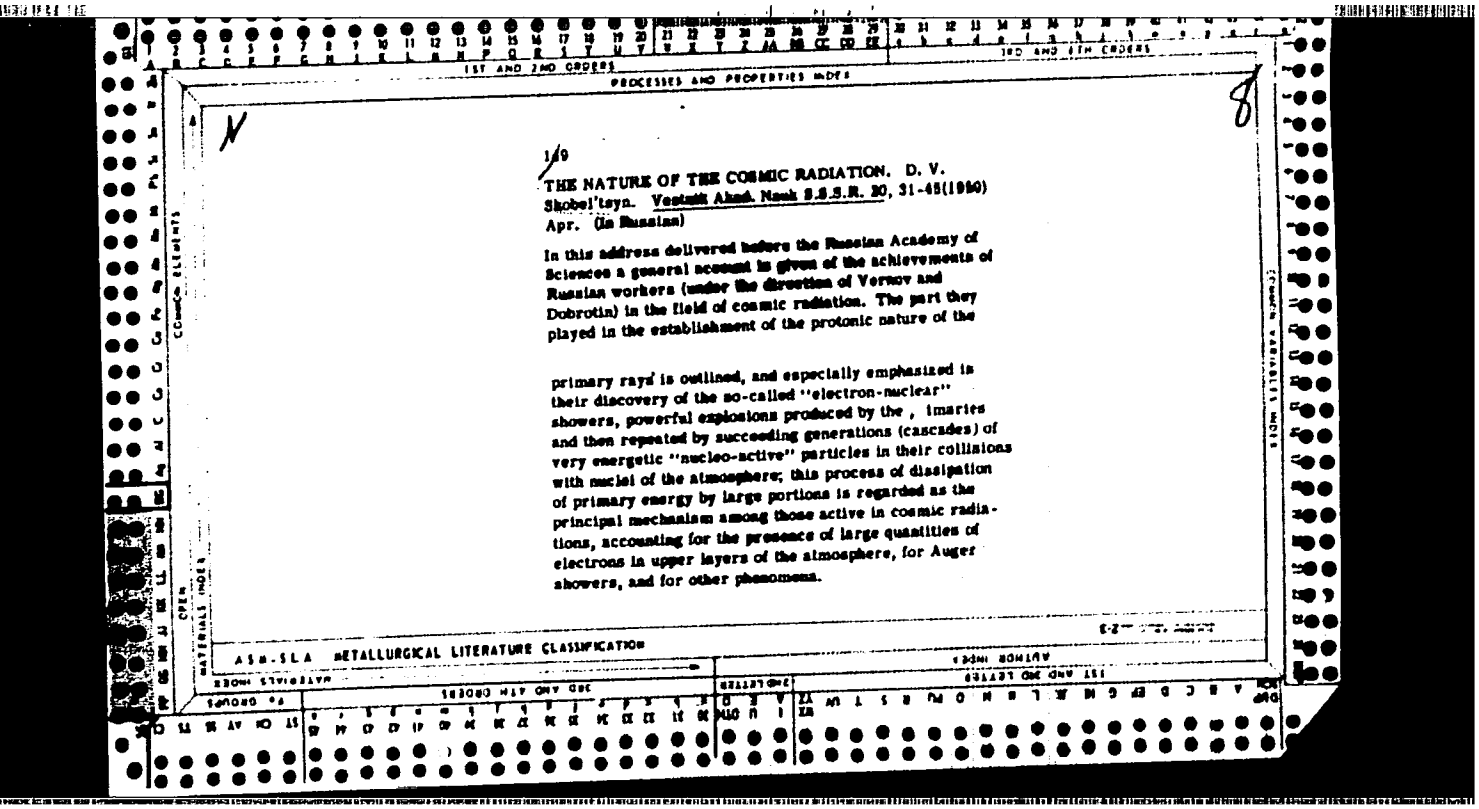


722 On the Shape of the "Correlation Curve" of Auger Showers for Large Distances. D. V. Skobel'tsyn.

Doklady Akad. Nauk S.S.S.R, 67, 255-8(1949)(in Russian).

In a previous paper (Doklady Akad. Nauk S.S.S.R, 67, 65 (1949)) the author has applied the cascade theory to a set of observations on atmospheric showers, which were made by Zatsepin et al (Zhur. Eksptl. i Teoret. Fiz. 17, 939(1947)) with the aid of widely separated counters (1,000 m); he found that the calculated effect is much weaker than that observed. However, being based on certain points in the cascade theory that lack in definiteness (e.g., in the estimation of the shower's radius R), the calculation may be considered as not sufficiently convincing. In the present note, the arbitrariness is avoided by comparing, not the absolute values of C(D) (where C is the number of coincidences, and D is the distance between counters), but the shapes of the "correlation" curve C(D) for D > R, it can be shown that there exists a simple correspondence between this curve and the density distribution of the shower at large distances from the latter's axis. By following this method, the results of the previous paper are confirmed: the cascade theory does not account for the effect observed. Its true cause may be looked for in the explosive nuclear processes generating "special" showers of mixed composition (Alekseeva et al, Doklady Akad. Nauk S.S.S.R. 63, 375(1948)). Or else, one may visualize an early separation of "genetically related" atmospheric showers with essentially parallel axes, so that two showers, and not a single gigantic one, are recorded by widely separated counters (Skobel'tsyn et al, Phys. Rev. 71, 315(1947)).

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION



1/9

THE NATURE OF THE COSMIC RADIATION. D. V. Skobel'tsyn. Vestnik Akad. Nauk S.S.S.R. 20, 31-45(1950) Apr. (In Russian)

In this address delivered before the Russian Academy of Sciences a general account is given of the achievements of Russian workers (under the direction of Vernov and Dobrotin) in the field of cosmic radiation. The part they played in the establishment of the protonic nature of the primary rays is outlined, and especially emphasized is their discovery of the so-called "electron-nuclear" showers, powerful explosions produced by the , imaries and then repeated by succeeding generations (cascades) of very energetic "nucleo-active" particles in their collisions with nuclei of the atmosphere; this process of dissipation of primary energy by large portions is regarded as the principal mechanism among those active in cosmic radiations, accounting for the presence of large quantities of electrons in upper layers of the atmosphere, for Auger showers, and for other phenomena.

SKOBEL'TSYN, D. V. 168T63

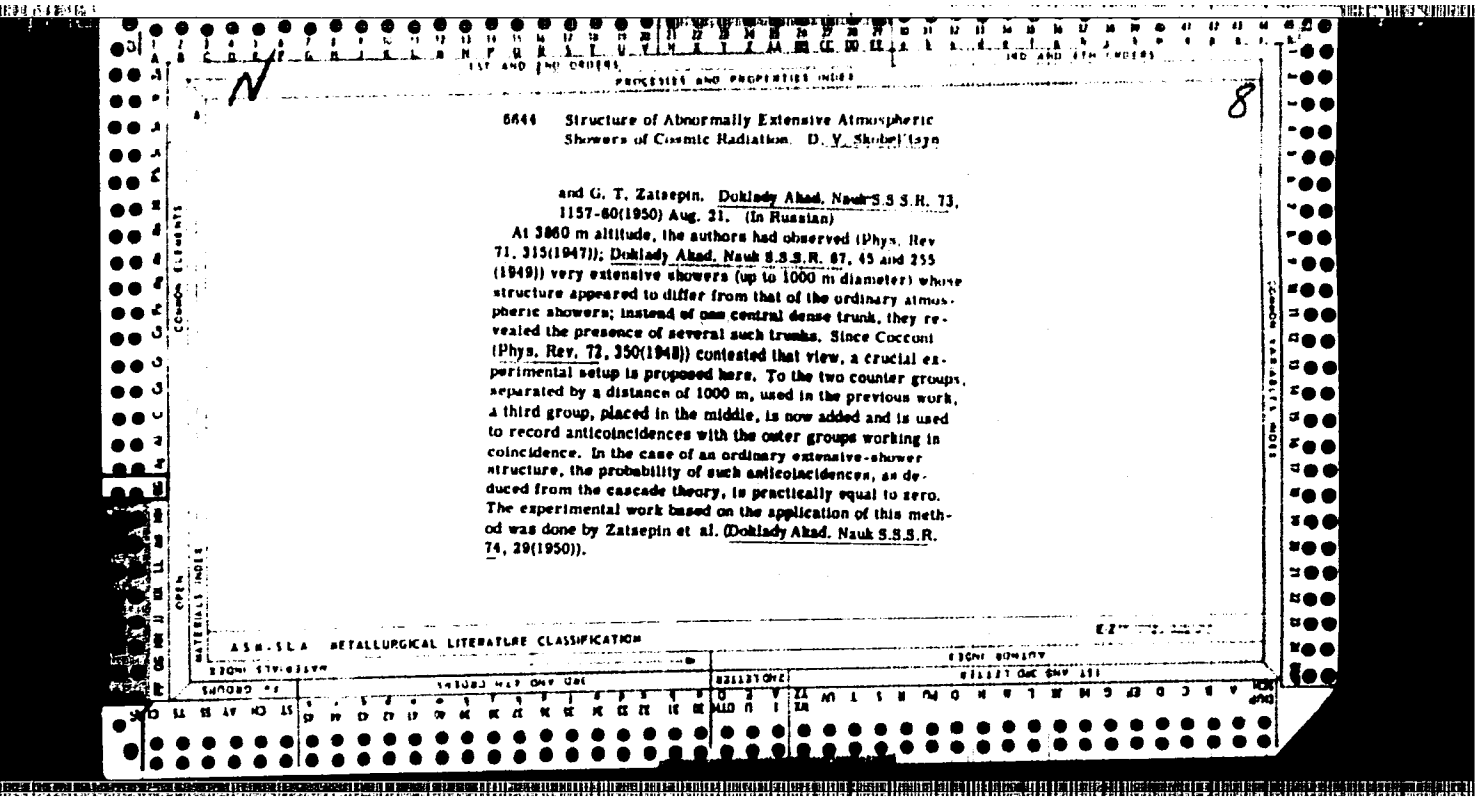
USSR/Nuclear Physics - Cosmic Rays Jul 50

"Nature of Cosmic Radiation," D. V. Skobel'tsyn

"Uspekhi Fiz Nauk" Vol XLI, No 3, pp 331-350

Reviews work on cosmic rays of past 2-3 years by two groups of young physicists, one directed by Prof S. N. Vernov, other by N. A. Dobrotin, Dr Physicomath Sci. Works were carried out by Phys Inst imeni P. N. Lebedev, partly in cooperation with Moscow State U and Acad Sci Uzbek SSR. Mainly disproves contention that primary particles of cosmic radiation are electrons. Describes Vernov's experiments in observing cosmic rays in stratosphere with pilot balloons and automatic radio equipment. Concludes primary particles are protons.

168T63



6644 Structure of Abnormally Extensive Atmospheric Showers of Cosmic Radiation. D. V. Skobel'tsyn and G. T. Zatsepin. Doklady Akad. Nauk S.S.S.R. 73, 1157-60(1950) Aug. 21. (In Russian)

At 3860 m altitude, the authors had observed (Phys. Rev 71, 315(1947)); Doklady Akad. Nauk S.S.S.R. 67, 45 and 255 (1949)) very extensive showers (up to 1000 m diameter) whose structure appeared to differ from that of the ordinary atmospheric showers; instead of one central dense trunk, they revealed the presence of several such trunks. Since Cocconi (Phys. Rev. 72, 350(1948)) contested that view, a crucial experimental setup is proposed here. To the two counter groups, separated by a distance of 1000 m, used in the previous work, a third group, placed in the middle, is now added and is used to record anticoincidences with the outer groups working in coincidence. In the case of an ordinary extensive-shower structure, the probability of such anticoincidences, as deduced from the cascade theory, is practically equal to zero. The experimental work based on the application of this method was done by Zatsepin et al. (Doklady Akad. Nauk S.S.S.R. 74, 29(1950)).

SKOBEL'TSYN, D. V.

"Selection, Training, and Preparation of Personnel at the Physics Institute imeni P. N. Lebedev," Vest Ak Nauk SSSR, No 11, p 115, Nov 52.

In a report by D. V. Skobel'tsyn, Director of Physics Inst. im. P. N. Lebedev, and G. A. Markeyev, Dr. Tech Sci, it was stated that in recent years the number of scientific workers at [illegible] increased tenfold. [illegible] that each candidate, corresponding member, and doctor of science supervise not less than two research students.

251T83

U S S R

537.591

5748. Summary of communications presented at the June 1952 meeting on cosmic rays; introductory remarks. D. V. SKOBEL'TSYN. *Izv. Akad. Nauk SSSR, (Ser. Fiz.)* 17, No. 1, 9–12 (1953) *In Russian.*
See Abstr. 5747 (1954).

SKOBEL'TSYN, D.V., akademik; BALDIN, A.; MIKHAYLOV, V.

On two types of charge symmetry. Dokl.AN SSSR 91 no.3:479-482 Jl '53.
(MLRA 6:7)

1. Fizicheskiy institut imeni P.N.Lebedeva Akademii nauk SSSR (for Baldin and Mikhaylov). 2. Akademiya nauk SSSR (for Skobel'tsyn).
(Nuclear physics)

VERNOV, S.N.; CHARAKHCH'YAN, A.N.; SKOBEL'TSYN, D.V., akademik.

Investigation of electron nuclear showers and penetrating particles in the stratosphere at various latitudes. Dokl.AN SSSR 91 no.3:487-490 Jl '53. (MLRA 6:7)

1. Akademiya nauk SSSR (for Skobel'tsyn).
(Cosmic rays) (Atmosphere, Upper)

GRIGOROV, N.L.; RAPOPORT, I.D.; SHIPULO, G.P.; SKOBEL'TSYN, D.V., akademik.

Spectrum of ionized cosmic radiation particles in the stratosphere. Dokl. AN SSSR 91 no.3:491-494 Jl '53. (MLRA 6:7)

1. Akademiya nauk SSSR (for Skobel'tsyn). (Cosmic rays) (Atmosphere, Upper)

SKOBEL'TSYN, D.V., akademik; ZARYA, V.S.; SMORODIN, Yu.A.; TULINOVA, Z.I.

Study of the non-ionizing components of cosmic rays in the stratosphere. Dokl.AN SSSR 91 no.3:495-498 Jl '53. (MLRA 6:7)

1. Fizicheskiy institut imeni P.N.Lebedeva Akademii nauk SSSR (for Zarya, Smorodin and Tulinova). 2. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova (for Zarya, Smorodin and Tulinova). 3. Akademiya nauk SSSR (for Skobel'tsyn). (Cosmic rays) (Atmosphere, Upper)

FEYNBERG, Ye.L.; CHERNAVSKIY, D.S.; SKOBEL'TSYN, D.V., akademik.

On the cross-section of super-speed nucleon interaction. Dokl.AN SSSR 91 no.3:511-513 Jl '53. (MLRA 6:7)

1. Akademiya nauk SSSR (for Skobel'tsyn).
(Collisions (Nuclear physics)) (Mesotrons)

GINZBURG, V.L.; FRADKIN, M.I.; SKOBEL'TSYN, D.V., akademik.

Electron components and origin of cosmic rays. Dokl.AN SSSR 92 no.3:531-534 S '53. (MLRA 6:9)

1. Akademiya nauk SSSR (for Skobel'tsyn). 2. Fizicheskiy institut im. P.N. Lebedeva Akademii nauk SSSR (for Ginzburg and Fradkin). (Cosmic rays)

GINZBURG, V.L.; SKOBEL'TSYN, D.V., akademik.

Statistical mechanism of particle acceleration on the surface of the sun and in the atmosphere of stars. Dokl.AN SSSR 92 no.4:727-730 O '53.
(MLRA 6:9)

1. Akademiya nauk SSSR (for Skobel'tsyn). 2. Fizicheskiy institut im. P.N. Lebedeva Akademii nauk SSSR (for Ginzburg).
(Particles) (Sun--Radiation) (Stars--Atmospheres)

GINZBURG, V.L.; SKOBEL'TSYN, D.V., akademik.

Supernovae and novae as sources of cosmic and radio emission. Dokl.AN SSSR 92 no.6:1133-1136 O '53. (MLRA 6:10)

1. Akademiya nauk SSSR (for Skobel'tsyn). 2. Fizicheskiy institut im. P.N. Lebedeva Akademii nauk SSSR (for Ginzburg).
(Cosmic rays) (Radio astronomy)

DOLISHNYUK, B.M.; DRABKIN, G.M.; ORLOV, V.I.; RUSINOV, L.I.; SKOBEL'TSYN, D.V., akademik.

Investigation of the nuclear isomerism of Zn^{69}, Nb^{95}, and Ba^{137}. Dokl.AN SSSR 92 no.6:1141-1144 O '53. (MLRA 6:10)

(Isomerism)

1. Akademiya nauk SSSR (for Skobel'tsyn).

VAVILOV, Yu.I.; NIKOL'SKIY, S.I.; TUKISH, Ye.I.; SKOBEL'TSYN, D.V., akademik.

Spatial distribution of charged particlesin the vicinity of the axis of an extensive atmospheric shower of cosmic rays. Dokl.AN SSSR 93 no.2:233-236 N '53. (MLRA 6:10)

1. Fizicheskiy institut imeni P.N.Lebedeva Akademii nauk SSSR. 2. Akademiya nauk SSSR (for Skobel'tsyn). (Cosmic rays)

NESMEYANOV, A.N., akademik; TOPCHIYEV, A.V., akademik; IOFFE, A.F., akademik; KAPITSA, P.L., akademik; LAVRENT'YEV, M.A., akademik; SKOBEL'TSYN, D.V., akademik; FOK, V.A., akademik.

Albert Einstein. Elektrichestvo no.6:85-86 Je '55. (MLRA 8:6)
(Einstein, Albert, 1879-1955)

NESMEYANOV, A.N., akademik; TOPCHIYEV, A.V., akademik; IOFFE, A.F., akademik; KAPITSA, P.L., akademik; LAVRENT'YEV, M.A., akademik; SKOBEL'TSYN, D.V., akademik; FOK, V.A., akademik

Albert Einstein; obituary. Vest. AN SSSR 25 no.5:67-68 My '55. (MLRA 8:7)
(Einstein, Albert, 1879-1955)

VEKSLER, V.I.; SKOBEL'TSYN, D.V., akademik, redaktor; RABINOVICH, M.S., redaktor; MAKUNI, Ye.V., tekhnicheskiy redaktor

[Atomic particle accelerators] Uskoriteli atomnykh chastits. Moskva, Izd-vo Akademii nauk SSSR, 1956. 46 p. (MLRA 9:3)

1. Chlen-korrespondent AN SSSR (for Veksler)
(Particle accelerators)

NESMEYANOV, A.N.; TOPCHIYEV, A.V.; KURCHATOV, I.V.; SKOBEL'TSYN, D.V.; KAPITSA, P.L.; IOFFE, A.F.; VINOGRADOV, A.P.; EREMBURG, I.G.; TIKHONOV, N.S.; FADEYEV, A.A.; FRANK, I.M.; VEKSLER, V.I.; KORNEYCHUK, A.Ye.; POPOVA, N.V.; LEBEDEVA, Z.A.; VASILEVSKAYA, V.L.; PETROVSKIY, I.G.; ALEKSANDROV, A.D.; ARTSIMOVICH, L.A.; MESHCHERYAKOV, M.G.

Irene Joliet-Curie; obituary. Vest.AN SSSR 26 no.4:73-72 Ap '56. (Joliet-Curie, Irene, 1897-1956) (MLRA 9:7)

JOLIOT-CURIE, Frederic; SKOBEL'TSYN, D.V., akademik, otvetstvennyy redaktor; TAMM, I.Ye., redaktor; DZHELEPOV, B.S., redaktor; FRANK, I.M., redaktor; GROSHEV, L.V., redaktor; SMIRNOVA, G.N., redaktor; BARIT, I.Ya, redaktor izdatel'stva; RYNDZYUNSKAYA, S.M., redaktor izdatel'stva; ZELINKOVA, Ye.V., tekhnicheskiy redaktor; NAZARYAN, L.V., tekhnicheskiy redaktor

[Selected works. Work written in collaboration with Irene Joiot-Curie] Izbrannye trudy. Frederik i Iren Zholio-Kiuri. Sovmestnye trudy. Moskva, Izd-vo Akademii nauk SSSR, 1957. 561 p. (MLRA 10:2)
(Radioactivity)

SKOBEL'TSYN, D.V.

SKOBEL'TSYN, D.V.; FRANK, I.M.

The P.N.Lebedev Institute of Physics, Academy of Sciences of the U.S.S.R. Usp.fiz.nauk 63 no.3:503-525 N '57. (MIRA 10:12)
(Physics)

SKOBEL'TSYN, D.V.

AUTHOR: None Given

SOV/50-58-7-15/49

TITLE: Co-Operation of Scientists in the Struggle Against Atomic War (Sotrudnichestvo uchenykh v bor'be s opasnost'yu yadernoy voyny) On the Results Obtained at the Conference in Lac Beauport/Canada/, (K itogam konferentsii v Lak-Boporte)

PERIODICAL: Vestnik Akademii nauk SSSR, 1958, Nr 7, pp. 82 - 85 (USSR)

ABSTRACT: This international conference took place in Lac Beauport, Canada province of Quebec (Kvebek) March 31 to April 11. The aim of the scientists from Australia (Avstraliya), Canada, the Chinese People's Republic (Kitayskaya Narodnaya Respublika), France (Frantsiya), Germany (Germaniya), Great Britain (Velikobritaniya), USSR (SSSR), USA (SShA) attending this confere ce, was to determine acceptable means for reducing the danger of war for all countries and to reduce the tensions in international relations. Amongst others, Professor Chou Pei-yuan of the Chinese People's Republic, Professor A.M.Kuzin, the members, Academy of Sciences, USSR, D.V.Skobel'tsyn, A.V.Topchiyev, A.P.Vinogradov took part in this conference. In 1955, a declaration signed by

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Co-Operation of Scientists in the Struggle Against Atomic War. On the Results Obtained at the Conference in Lac Beauport

Bertrand Russell (Bertran Rassel), Albert Einstein (Al'bert Eynshteyn) and 9 other scientists, in which attention was drawn to the danger involved in the production of arms of mass extermination and which contained an appeal to call a conference of scientists, was published. Such a conference which was attended by 22 scientists, was called in July 1957 in Pugwash Canada, province of Nova Scotia (Novaya Shotlandiya). A declaration was published and a permanent committee in which D.V.Skobel'tsyn also took part, was established. This permanent committee decided at a session in London in December last year, to call a conference in Lac Beauport . The discussion dealt with 3 principal problems: The danger of the present situation, the means for reducing the immediate danger and the means for reducing tensions. The Permanent Committee proposed - which was approved - to call a conference in Austria in September of this year which ought to deal with the problem of peace in the atomic age. A.V.Topchiyev reported on the conference in Lac Beauport at a meeting of the Presidium , AS USSR, on May 9. At this conference, the Soviet Scientists spoke about the following problems:

Co-Operation of Scientists in the Struggle Against Atomic War. On the Results Obtained at the Conference in Lac Beauport

SOV/30-58-7-15/49

1)A.V.Topchiyev: On the Present Situation and the Tasks of Scientists; on an International Scientific Exchange.
2)A.A.Vinogradov: On the Cessation of the Tests With Atomic Weapons of All Types.
3)D.V.Skobel'tsyn: On Remarks Concerning the Armaments Race and Disarmament.
4)A.A.Kaznin: How the Present Danger Is Judged by a Biologist.
Concluding, Topchiyev said that the most important reports of the conference were forwarded to the heads of 15 States and to the General Secretary of the UNO..A.A.Vinogradov, and D.V.Skobel'-tsyn completed the report delivered by Topchiyev. The Presidium, AS USSR, approved the activity displayed by the Soviet Delegates.

Card 3/4

SKOBELTSYN, D.

"Very fast beta particles of a new type." Tr. from Russian, p. 611

MAGYAR FIZIKAI FOLYOIRAT. (Magyar Tudomanyos Akademia) Budapest, Hungary, Vol. 6, No. 6, 1958.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, No. 6, June 1959. Uncl.

SKOBELTSYN, D. V.

" A Chain Reaction of Errors." Bulletin of the Atomic Scientists, Vol 14, No. 7, Sept. 1958.

Dir., Physics, Inst. im. P. N. Lebedev,

NESMEYANOV, A.N., akademik, SKOBEL'TSYN, D.V., BERNAL, Dzhon [Bernal, J.]

In memory of Frédéric Joliot-Curie. Vop.ist.est.i tekh. no.9:18-27 '60. (MIRA 13:7)

(Joliot, Frédéric, 1900-1958)

SKOBEL'TSYN, D.V.

Eminent Russian physicist S.I.Vavilov. Usp.fiz.nauk 75 no.2:227-230 O '61. (MIRA 14:10)
(Vavilov, Sergei Ivanovich, 1891-)

3 9133
S/026/62/000/006/001/004
D045/D114

3, 2419 (2905, 2705, 2805)

AUTHOR: Skobel'tsyn, D.V., Academician

TITLE: Cosmic rays

PERIODICAL: Priroda, no. 6, 1962, 3-13

TEXT: Methods and equipment used for studying superhigh energies in cosmic rays are described, and present trends of research are discussed. In the USSR, a method has been developed which permits directly determining the energy of a primary particle which has caused the multiple formation of secondary particles. A Wilson chamber, located in a strong magnetic field and used for determining the energy of secondary particles formed in the flux, is used together with an ionization calorimeter. The secondary particles are formed in a lithium hydride block used so as to ensure that all the investigated products of interaction result from nucleon-nucleon collisions. The flux formed as a result of a primary collision passes through the successive layers of an absorber in which occur the cascade processes

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Cosmic rays

of the formation of secondary particles. The number of particles increases, while the energy in each particle correspondingly decreases. By measuring the ionization caused by the particle flux in the layers of the ionization chambers placed between the layers of the absorbers, a curve of absorption can be obtained. The area bounded by this curve determines the full energy of the entire flux. Judging by the results of observations using the ionization calorimeter, the following rule can be adopted: the multiplicity of formation of particles is proportional to the mass of a cluster. The ionization calorimeter method has been used at the Fizicheskiy institut AN SSSR (Physics Institute of the AS USSR)- FIAN, and in research conducted on Mt Aragats by the Nauchno-issledovatel'skiy institut yadernoy fiziki MGU (Scientific Research Institute of Nuclear Physics of the MGU) and the Akademiya nauk Armyanskoy SSR (Academy of Sciences, Armyanskaya SSR). In 1962, a more efficient installation will be assembled at the Tyan'-Shan' Station of the FIAN near Alma-Ata at an altitude exceeding 3300 m. A 1000 t magnet has been installed at the Tskhra-Tskaro Station near Bakuriani. The Insti-

Cosmic rays

S/026/62/000/006/001/004
D045/D114

NIIYaF of the MGU. General data is given on problems connected with variations in cosmic radiation intensity. In this connection, the atmospheric station of the FIAN is launching apparatus to high altitudes so as to register solar flares. The appearance of splashes of solar radiation, caused by the emission of heavy high-energy nuclei by the Sun, was indicated for the first time during observations by the second Soviet space rocket. Soviet research is being mainly concentrated on the study of (1) the interaction between primary particles of superhigh energy and atomic nuclei and (2) the quota of heavy or medium-heavy atomic nuclei in the zone of extremely high energies of cosmic radiation; the investigation of radiation spectra and atmospheric showers will help solve the latter problem. There are 14 figures.

4

Card 4/4

S/030/62/000/006/001/007
I023/I223

AUTHOR: Skobel'tsyn, D.V., Academician

TITLE: Cosmic rays

PERIODICAL: Akademiya nauk SSR Vestnik, no. 6, 1962, 15-28

TEXT: The article is a review of the present state of cosmic ray research. The various aspects of the research are divided into three groups: 1) the nature and properties of elementary particles (ultra-high energies), 2) interplanetary space, phenomena in it and on the sun, 3) origin of cosmic rays, connected with astrophysical and cosmological problems. The various problems are discussed and the experimental methods applied to solve them are described. Soviet and Western experiments are analyzed, with the stress on Soviet work. Soviet experiments in preparation are briefly described. There are 9 figures.

Card 1/1

ARTSIMOVICH, L.A., akademik; KELDYSH, M.V., akademik; KAPITSA, P.L., akademik; VUL, B.M.; VERESHCHAGIN, L.F.; PISTOL'KORS, A.A.; SHCHUKIN, A.N., akademik; SKOBEL'TSYN, D.V., akademik; ALEKSANDROV, A.P., akademik; AMBARTSUMYAN, V.A., akademik; ZEL'DOVICH, Ya.B.; SEMENOV, N.N., akademik; KOTEL'NIKOV, V.A., akademik; LIFSHITS, I.M.; VEKSLER, V.I., akademik; GINZBURG, V.L.; MILLIONSHCHIKOV, M.D., akademik

Some problems in the development of modern physics; discussion of the work of the Department of General and Applied Physics. Vest. AN SSSR 35 no.2:3-46 F '65. (MIRA 18:3)

1. Chleny-korrespondenty AN SSSR (for Vul, Vereshchagin, Pistol'kors, Lifshits, Ginzburg).

SKOBEL'TSYN, V.S.

[Aid for an aerodynamics club leader] V pomoshch' rukovoditeliu kruzhka po aerodinamike. Moskva, Gos. uchebno-pedagog. izd-vo, 1953. 56 p.
(MLRA 6:8)
(Aerodynamics)

AID P-261

Subject : USSR/Aeronautics

Card : 1/3

Periodical : Kryl. Rod., 5, 1 - 24, My 1954

Abstract : Articles in this issue are very popular, and are not of special interest. They are listed on the following Table of Contents:

Skobel'tsyn, V.

AID P - 1080

Subject : USSR/Aeronautics

Card 1/1 Pub. 58 - 10/19

Author : Skobel'tsyn, V.

Title : Things to do in an aircraft modelers beginners' circle

Periodical : Kryl. rod., 12, 17, D 1954

Abstract : The author suggests a program of training.

Institution : None

Submitted : No date

SKOBEL'TSYN, Vladimir Stepanovich; PASHKEVICH, Nikolay Konstantinovich; KANEVSKAYA, M.D., redaktor; MUNTYAN, T.P., tekhnicheskiy redaktor.

[Model aircraft club; first year of activities] Aviamodel'nyi kruzhok; pervyi god zaniatii. Moskva, Izd-vo DOSAAF, 1956. 141 p. (Microfilm) (Airplanes--Models) (MLRA 9:7)

ASHIKHMIN, V.I.; GELLER, Z.I.; SKOBEL'TSYN, Yu.A.

Temperature distrubution and the average temperature of highly viscous petroleum products in tanks. Izv.vys.ucheb.zav.; neft' i gaz 2 no.12:89-93 '59. (MIRA 13:5)

1. Groznenskiy neftyanoy institut.
(Petroleum products--Thermal properties)
(Tanks)

ASHIKHMIN, V.I.; GELLER, Z.I.; SEOBEL'SYN, Yu.A.

Viscous fluid discharge external cylindrical nozzles. Neft. khoz. 39 no.9:55-59 S '61. (MIRA 15:1)

(Hydrodynamics)

GELLER, Z.I., doktor tekhn. nauk, prof.; SKOBEL'TSYN, Yu.A., inzh.

Coefficient of expenditure of external cylindrical caps in the flow of a viscous liquid. Teploenergetika 10 no.11. 72-74 N '63. (MIRA 17:1)

1. Groznenskiy neftyanoy institut.

[redacted], M.I.; [redacted], M.A.

Viscous fluid flow from long and extremely short external cylindrical nozzles. Izv. vys. ucheb. zav.; neft' i gaz 6 no.8.77-82 '63. (MIRA 17:6)

1. Orzhenskiy neftyanoy institut.

GRIN, V.S.; KOBRINSKIY, Yu.P.

Flow of a real fluid from external cylindrical nozzles at low Reynolds numbers. Nauch.zap.Ural.un. 21 no.2:63-65 '63. (MIRA 17:10)

[redacted], DEGTEL'NYY, Yu.A., [redacted]ENKO, V.A.

Flow rate factors of the discharge devices in tank cars.
Izv. vys. ucheb. zav., neft' i gaz 7 no.3:95-97 '64.
(MIRA 17:6)

1. Groznenskiy neftyanoy institut.

GELLER, Z.I.; SKOBEL'TSYN, Yu.A.

Disruption characteristics of external cylindrical nozzles.
Neft. khoz. 42 no.7:57-60 Jl '64. (MIRA 17:8)

SKOBEL'TSYN, Yu.A.

Hydraulic calculation of a jet tube with a sharp leading edge. Izv. vys. uchet. zav., neft' i gaz 7 no.9:71-75 '64. (MIRA 17:12)

1. Groznenskiy neftyanoy institut.

GELLER, Z.I.; SKOBEL'TSYN, Yu.A.

Comparing the flow-rate factors of external cylindrical nozzles and the openings in a thin wall. Neft.khoz. 43 no.4:60-62 Ap '65. (MIRA 18:4)

[redacted], M. V.

Dissertation: "Rural Electric Power Stations in Conditions of the Forest Zone of the European USSR on the Example of the Mari ASSR."

22/6/50

Power Engineering Inst imeni G. M. Krzhizhanovskiy

SO Vecheryaya Moskva
Sum 71

SKOBEL'TSYN, Yu.V.; MIKHEYEVA, T.G.; KOCHETKOV, P.P.; KODOCHIGOV, D.I.

Rural hydroelectric power stations on the small rivers of the Mari Republic. Izv.Mar.sta.po elek.sel'.i les.khoz. no.1: '51. (MIRA 10:11)

(Mari A.S.S.R.--Hydroelectric power plants)

SKOBEL'TSYN, Yu.V.; MIKHEYEVA, T.G.; KOCHETKOV, P.P.; KODOCHIGOV, D.I.

Local rural electric power systems based on the example of Mari-Turek Region of the Mari A.S.S.R. Izv.Mar.sta.po elek.sel'.i les.khoz. no.1:51-81 '51. (MIRA 10:11)
(Mari A.S.S.R.--Electric power plants)

SKOBEL'TSYN, Yu.V.; SMIRNOV, R.V.

Very simple automatic processes for rural hydroelectric power plants. Izv.mar.sta.po elek.sel.i les.khoz.no.2:23-30 '53. (MIRA 23-30)

(Hydroelectric power stations) (Automatic control)

SKOBEL'TSYN, Yu.V.; MIKHEYEVA, T.G.

Power consumption of the agricultural districts in the area of the Kuybyshev Hydroelectric Power Station. Izv.mar.sta.po elek. sel.i les.khoz.no.2:51-66 '53. (MIRA 10:12)
(Electricity in agriculture)
(Kuybyshev hydroelectric power station)

BEDNOV, N.I.; KAPUSTIN, V.A.; SKOBEL'TSYN, Yu.V.

Methods for determining the prospective power consumption and rated load in agricultural regions. Izv. Kazan. fil. AN SSSR. Ser. energ. i vod. khoz. no.1:29-42 '57. (MIRA 11:10)
(Rural electrification)

SKOBEL'TSYN, Yu.V.; TOLKACHEV, D.F.

Basic parameters and economic indices of water heating in greenhouse and cold-frame gardening when utilizing heat waste. Izv. Kazan. fil. AN SSSR. Ser. energ. i vod. khoz. no.1:71-85 '57. (MIRA 11:10)

(Greenhouses--Heating and ventilation)

SKOBEL'TSYN, Yu.V., prof.

Tasks of science in the field of agricultural electrification. Mekh.i elek.sots.sel'.khoz. no.6:10-11 '57. (MIRA 10:12)
(Rural electrification)

[redacted], Yu. V.

"Rural Electric Power Stations in the Forest Zone of the European Part of the USSR as Sown by the Example of the Mariyc SSr."

Dissertation for the Degree of Candidate of Technical Sciences, defended at Institute for Power Engineering imeni Krzhizhanovskiy AS USSR, (Elektrichestvo, 1958, Nr 4, pp 86-87)

[redacted]
2 Dec 1958

SKOBEL'TSYN, Yu.v., prof.ovt.red.

[Methods of power engineering calculations of hothouse establishments using waste heat from industrial enterprises and power stations] Metodika energeticheskikh raschetov teplichno-parnikovykh khoziaistv pri ispol'zovanii teplovykh otkhodov promyshlennykh predpriiatii i elektrostantsii. Kazan, 1959. 145 p. (Its: Trudy. Seriia energetiki i vodnogo khoziaistva, no.3) (MIRA 13:3)

(Heat engineering)
(Greenhouses--Heating and ventilation)

SKOBEL'TSYN, Yu.V., prof.; KAPUSTIN, V.A., inzh.; BEDNOV, N.I., inzh.; OL'SHEVSKAYA, V.T.

Simplified method of determining principal factors of electric supply before drawing up a final plan. Mekh.i elek.sots. sel'khoz. 17 no.5:29 '59. (MIRA 12:12)

1. Kazanskiy filial AN SSSR.
(Rural electrification)

SKOBEL'TSYN, Yu.V., prof., otv.red.; PETROV, G.N., red.; SHARAFUTDINOVA, M.Z., tekhn.red

[Areas of catchment basins and density of the drainage network of small rivers in the middle Volga Valley] Ploshchadi vodosbornykh basseinov i plotnost' rechnoi seti malykh rek Srednego Povolzh'ia. Kazan', 1960. 274 p. (Akademiia nauk SSSR. Kazanskii fil-al. Trudy, no. 5). (MIRA 14:2)
(Volga Valley--Hydrography)

SKOBEL'TSYN, Yu.V.

Agricultural power engineering problems of the Tatar A.S.S.R. Trudy Kazan.fi..AN SSSR.Ser.energ. i vod.khoz. no.2:5-8 '61. (MIRA 15:3)

(Tatar A.S.S.R.—Electrification)

SKOBEL'TSYN, Yu.V., prof.

Effectiveness of farm electrification. Mekh. i elek. sots. sel'khoz. 19 no.4:44-45 '61. (MIRA 14:11)

1. Kazanskiy filial AN SSSR.
(Electricity in agriculture)

Skobel'tsyna, N.A.

AUTHORS: Pinsker, Z.G. and Skobel'tsyna, N.A. 70-5-8/31

TITLE: An Electronographic Investigation of the Precipitation Processes of Supersaturated Solid Solutions in the Systems Al-Cu and Ag-Cu. (Elektronograficheskoye issledovaniye protsessov raspada peresyshchennykh tverdykh rastvorov v sistemakh Al-Cu i Ag-Cu)

PERIODICAL: Kristallografiya, 1957, Vol.2, No.5, pp. 618-622 (USSR).

ABSTRACT: In the plates of Al-Cu alloys investigated quenched specimens were annealed at 130-180°C. In polycrystalline specimens the θ -phase separated at once but in single crystals the decay of the solid solution was accompanied by the separation of a cubic phase with a = 8.38 A. Normally, when large specimens are examined by X-ray diffraction (alloys of about 5% Cu in Al) Guinier-Preston Zones I and II are observed (the second corresponding to the θ'-phase near to $CuAl_2$) before the true θ -phase ($CuAl_2$) appears. With electronographic specimens the θ -phase appeared at once without intermediaries. Specimens were produced by two methods; sublimation of an alloy with 20% Cu and simultaneous evaporation of Cu and Al. The sublimate was collected on rock salt or celluloid at room temperature and the evaporation was on to a rock salt crystal

Card 1/3

70-5-8/31

A Electronographic Investigation of the Precipitation Processes of Supersaturated Solid Solutions in the Systems Al-Cu and Ag-Cu.

heated to 300 °C. Specimens were heated to 450 - 500 °C and quenched to room temperature. Annealing was at temperatures up to 250 °C in vacuo for times up to 6 hours. Annealing at 50 - 60 °C gave only one line corresponding to the 110 reflection of $CuAl_2$; more lines appeared at 80-100 °C and the pattern was most intense at 130-150 °C. Most specimens were oriented with $(111)_{Al}//(100)_{NaCl}$ and $[110]_{Al}//[100]_{NaCl}$ or $[110]_{NaCl}$. The $CuAl_2$ has the preferred orientation $(110)_{CuAl_2}// (111)_{Al}$ and $[110]_{CuAl_2} // [110]_{Al}$. One specimen which was annealed for 3 hours at 180 °C shows a cubic phase (α') with a = 8.38 A. It has the orientations (1) $(100)_{\alpha'}$ // $//(100)_{Al}$ and $[100]_{\alpha'}// [100]_{Al}$ and (2) $(110)_{\alpha'}// (100)_{Al}$ and $[100]// [110]_{Al}$. More experimental data are required to elucidate the structure of this α'-phase.

In the system Ag-Cu with less than 14% Cu a tetragonal phase α with a = 4.15 and c=11.67 A was found for specimens produced

Card2/3

70-5-8/31

An Electronographic Investigation of the Precipitation Processes of Supersaturated Solid Solutions in the Systems Al-Cu and Ag-Cu.

by sublimation of Cu and Ag on to rock salt, annealing at 500 °C for 1/2 hour followed by quenching to room temperature and annealing at 250 °C. This phase can be regarded as a superstructure of the Ag lattice formed as a results of the segregation of the Cu atoms. Annealing at 350 °C leads to mutual solution of the separate phases.
There are 6 figures and 3 references, 1 of which is Slavic.

ASSOCIATION: Gor'kiy State University im. Lobachevskiy (Gor'kovskiy Gosudarstvennyy Universitet im. Lobachevskogo)
Institute of Crystallography Ac.Sc. USSR
(Institut Kristallografii AN SSSR)

SUBMITTED: May 18, 1957.

AVAILABLE: Library of Congress

Card 3/3

L 26501-66 EWT(1)/EWT(m) IJP(c) GG/JG/JD

ACC NR: AP6013062 SOURCE CODE: UR/0048/66/030/004/0610/0611

54
B

AUTHOR: Vergunas, F. I.; Skobel'tsyna, N. A.

ORG: None

TITLE: The photodielectric effect in ZnS:Ag crystal phosphors /Report, Fourteenth Conference on Luminescence held in Riga, 16-23 September 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 4, 1966, 610-611

TOPIC TAGS: crystal phosphor, zinc sulfide, dielectric loss, photodielectric effect

ABSTRACT: The photodielectric effect (PDE), which consists in increase of the dielectric constant (i.e., the capacitance of the measuring capacitor) and change of the loss tangent of crystal phosphors under the action of ultraviolet irradiation, may be due either to trapped electrons (type I PDE) or conductance in an inhomogeneous specimen (type I PDE). In an earlier paper F.I.Vergunas and G.M.Malkin (Doklady AN SSSR, 137, 560, 1961) adduced the criteria or indications for distinguishing between PDE I and PDE II. In experimental studies of several ZnS phosphors the authors' group detected only PDE II (PDE I was evinced within the limits of the experimental error if at all); P.Krispin (Physica Status Sol. 3, 81, 1963), however, demonstrated the existence of PDE I in ZnS:Ag phosphor. Accordingly, the present work was concerned with investigation of the PDE in this crystal phosphor. The experimental procedure was the

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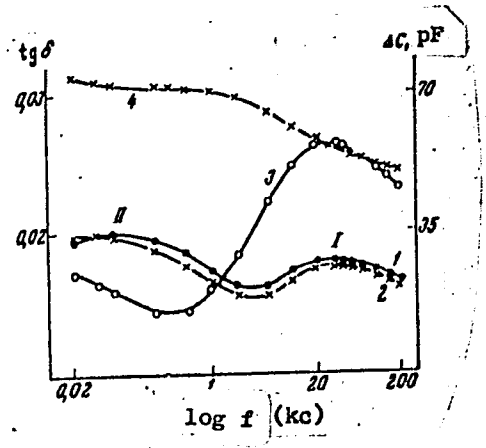

Fig. 1

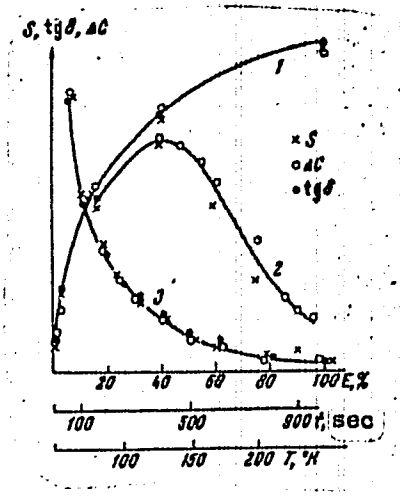

Fig. 2

Fig. 1. Frequency dependences of tan δ (curves 1-3) and Δ C (4) at different values of the UV intensity E and temperature T: 1) E = 100%, T = 313°K, 2) E = 39%, T = 313°K, 3) E = 39%, T = 203°K, 4) E = 100%, T = 80°K.

Fig. 2. Dependences of S, tan δ and Δ C on E (1), T (2), and the time of UV irradiation (3).

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L 26501-66

ACC NR: AP6013062

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same as described earlier (F.I.Vergunas and K.Sh.Yenikeyeva, Izv. An SSSR, Ser. fiz., 26, 475, 1962). The phosphor was stimulated by the 365 mμ triplet. Measurements were made of the frequency dependences of the loss tangent and the increment in capacitance at different temperatures T and different levels of the exciting UV light E. There were also recorded the dependences of S (the light sum stored in the only significant 0.3 eV traps), the capacitance increment ΔC, and tan δ. The data are presented in the accompanying figures. It is inferred from analysis of the data, that the 0.3 eV traps, common to most zinc sulfide phosphors, differ in some manner in ZnS:Ag; at any rate the models usually employed for the 0.3 eV traps in other ZnS phosphors are inconsistent with the present results and hence presumably inapplicable to ZnS:Ag. Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 00/ ORIG REF: 004/ OTH REF: 004

Card 3/3

USSR/Engineering May/Jun 48
Boilers
Turbines

"Bibliography on Boiler and Turbine Construction," Yu. V. Skobel'tsyna, 1½ pp

"Kotloturbostroye" No 3

Lists 22 USSR and foreign works on above-mentioned subjects.

[redacted] 16/49T48

SKOBENNIKOV, K.

Thorough economic analysis helps to fulfill the seven-year plan.
Muk.-elev. prom. 25 no.4:6-8 Ap '59. (MIRA 13:1)

1.TSentral'naya bukhgalteriya Ministerstva khleboproduktov RSFSR.
(Grain trade--Accounting)

SKOBENNIKOV, K.

Economic analysis as an important factor in estimating the reserves and controlling poor management and wastefulness. Muk.-elev. prom. 29 no.9:5-7 S '63. (MIRA 17:1)

1. Glavnyy bukhgalter TSentral'noy bukhgalterii Vserossiyskogo ob"yedineniya khleboproduktov.

SKOBENNIKOV, L.

Can you "hear" with the palm of your hand? IUn. tekh. 4 no.10:25 O '59. (MIRA 13:1)

(Hearing aids)

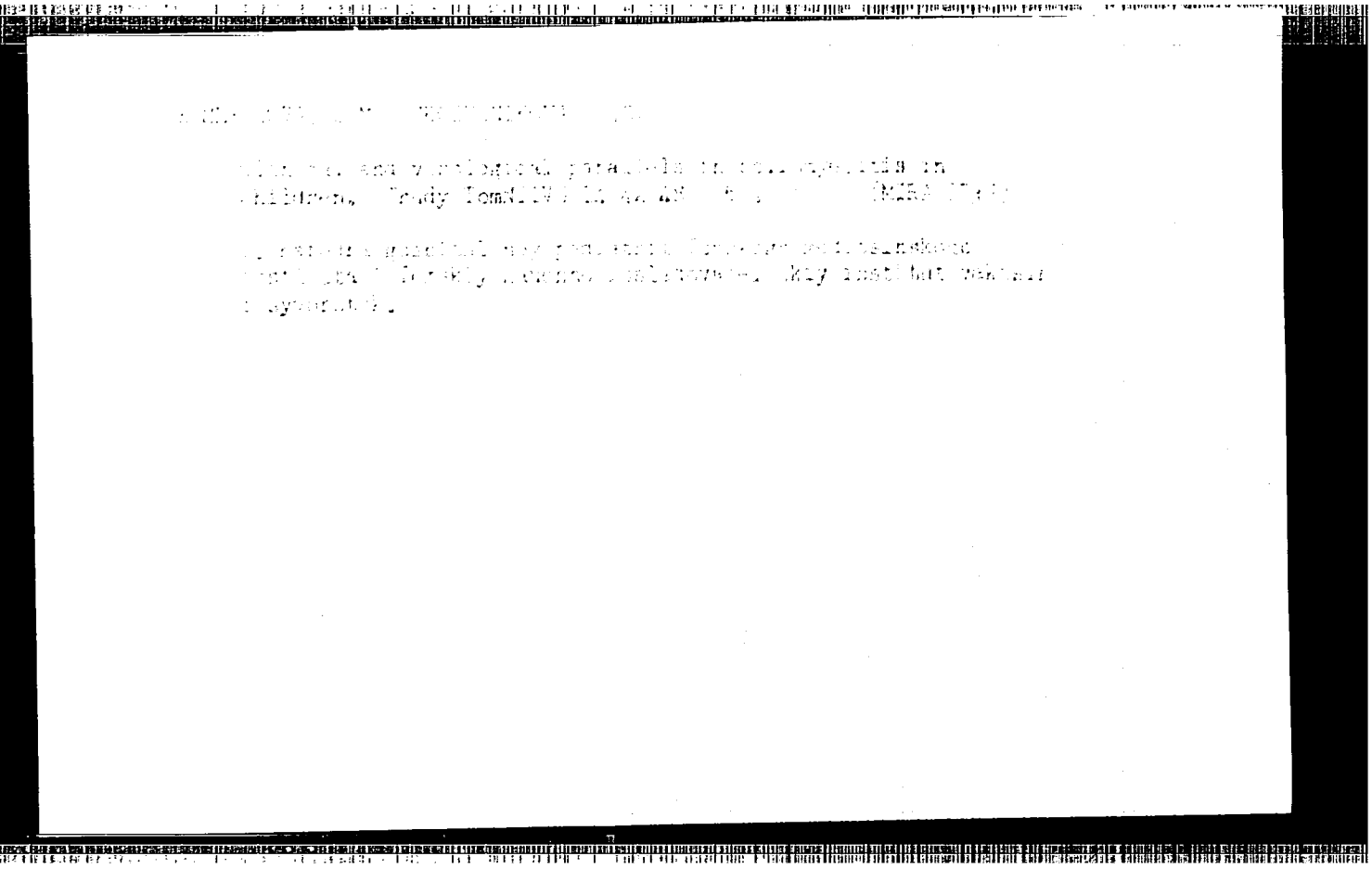
SKOBENNIKOV, L., inzh.

Physics of musical instruments. IUn.tekh. 5 no.5:24-28 My '61.
(MIRA 14:5)

(Music--Acoustics and physics)

KOSTYUKOV, S.N.; SKOBENNIKOV, V.N., red.; MEDVEDEV, L.Ya., tekhn. red.

[Production line and unit method of repairing tractors at peat enterprises] Potochno-uzlovoi metod remonta traktorov na torfo-predpriiatiiakh. Moskva, Gos. energ. izd-vo, 1958. 47 p.
(Tractors--Maintenance and repair) (MIRA 11:7)



SKOBENNIKOVA, I.

Conference on using electronic calculating machines in accounting, planning, and statistical work. Sots. trud 8 no.10:143-146 O '63. (MIRA 16:12)

"Differential Polarography (Review of the Literature)," by Ye. M. Skobets and V. D. Skobets, Zavodskaya Laboratoriya, Vol 23, No 2, Feb 57, pp 167-173

The principles and characteristics of differential polarography are described. Differential polarography with two drop cathodes, differential polarography with one drop cathode, methods of eliminating current oscillations, the use of electrodes with forced detachment of drops, and the use of solid electrodes in differential polarography are discussed in detail on the basis of information given in the literature. A bibliography consisting of 14 USSR, 7 Czech, one Japanese, and 20 Western references is appended. The characteristics of the method of differential polarography are described as follows:

"By using the method of differential polarography one may determine substances present in low concentrations. Because of the elimination on the differential curve of charging currents and of residual currents, one may take advantage of the high-sensitivity range of galvanometers and determine quantities which cannot be determined by the ordinary polarographic method.

Sum. 1322

"The differential curve gives sharp maxima in cases when the diffusion current can be barely observed. For instance, one can determine with the aid of the differential curve potassium and sodium against the background of calcium chloride or lithium chloride, i.e., under conditions when the depolarizer is separated in the vicinity of the principal electrolyte and its diffusion current is weakly expressed. With the aid of the differential curve, one can separate waves which have merged; this is particularly important in the analysis of compounds of complex composition. A polarographic spectrum in the form of differential maxima can be obtained much more easily than one in the form of ordinary polarographic waves. In every instance when formation of a diffusion current takes place, the differential curve returns to zero, so that one can easily determine with the aid of the differential curve traces of a less noble depolarizer in the presence of a substantial excess of a more noble depolarizer in the presence of a substantial excess of a more noble depolarizer. This can be achieved only to a limited extent by using the compensation method in ordinary polarography.

"Furthermore, the differential curve gives detailed information on the symmetry of the wave, which is important for evaluating the reversibility of the electrode process." (U)

Sum 1332

SKOBETS, V.D.; ABARBARCHUK, I.L.; SKOBETS, Ye.M.

Determination of potassium, sodium, and their sum by the method of derivative polarography. Ukr.khim.zhur. 28 no.2:251-259 '62. (MIRA 15:3)

1. Ukrainskaya akademiya sel'skokhozyaystvennykh nauk.
(Potassium--Analysis) (Sodium--Analysis) (Polarography)

SKOBETS, V. D.; SKOBETS, Ye. M.

Simplified circuit for obtaining differential polarographic curves. Ukr. khim. zhur. 28 no.3:337-342 '62. (MIRA 15:10)

1. Ukrainskaya sel'skokhozyaystvennaya akademiya.

(Polarography)

SKOBETS, V. D.; ABARBARCHUK, I. L.; SKOBETS, Ye. M.

Determining the total amount of metathetic alkalies in soils by differential polarography. Nauch. dokl. vys. shkoly; biol. nauki no.3:189-193 '62. (MIRA 15:7)

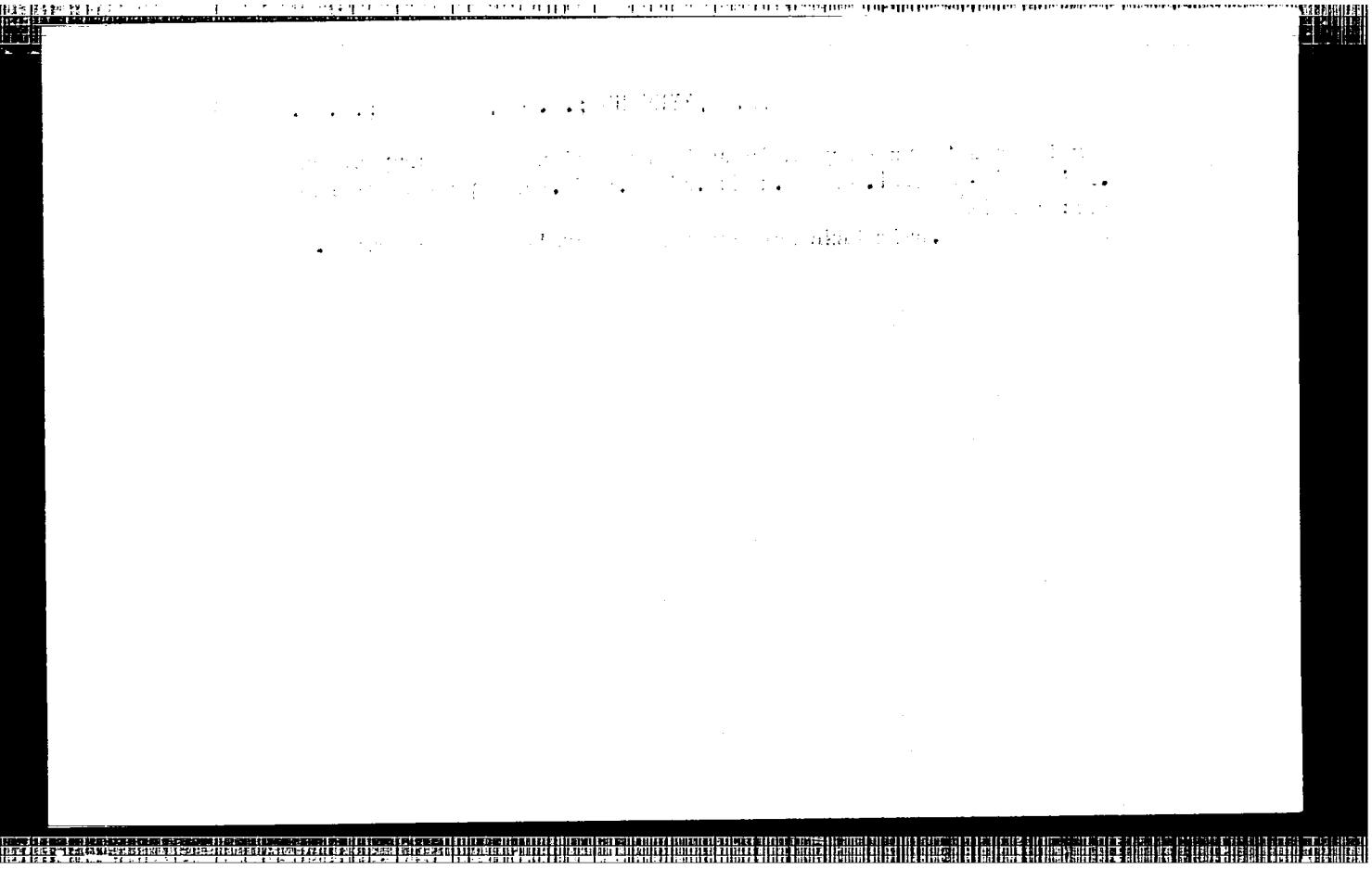
1. Rekomendovana kafedroy neorganicheskoy i analiticheskoy khimii Ukrainskoy akademii sel'skokhozyaystvennykh nauk.

(SOILS—SODIUM CONTENT) (POLAROGRAPHY)
(SOILS—POTASSIUM CONTENT)

SKOBETS, Yevgeniy Moiseyevich, doktor khim. nauk; SKOBETS, Vera Dmitriyevna, khimik; DELIMARSKIY, Yu.K., akademik, retsenzent; TSYBA, L.A., inzh., red.izd-va; BEREZOVYY, V.N., tekhn. red.

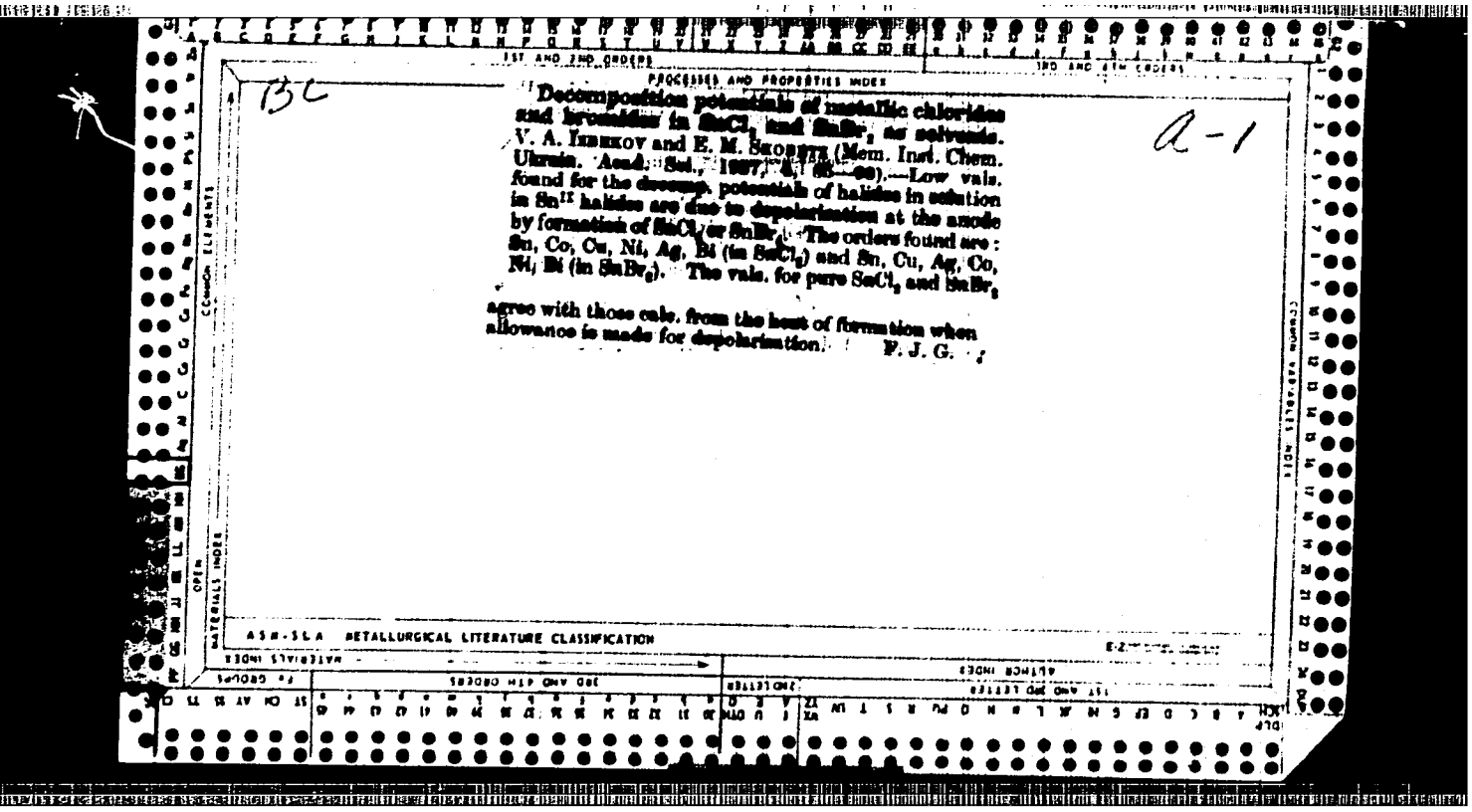
[Derivative polarography] Proizvodnaia poliarografiia. Kiev, Gostekhizdat, 1963. 112 p. (MIRA 16:12)

1. Akademiya nauk Ukr. SSR (for Delimarskiy).
(Polarography)



SKOBETS, Ye.M.; KARNAUKHOV, A.I.; KAVETSKIY, N.S.

Electrolytic concentration of substance and their subsequent determination by means of reverse inrush currents. Trudy Kom. anal. khim. 15:179-184 '65. (MIRA 18:7)



1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

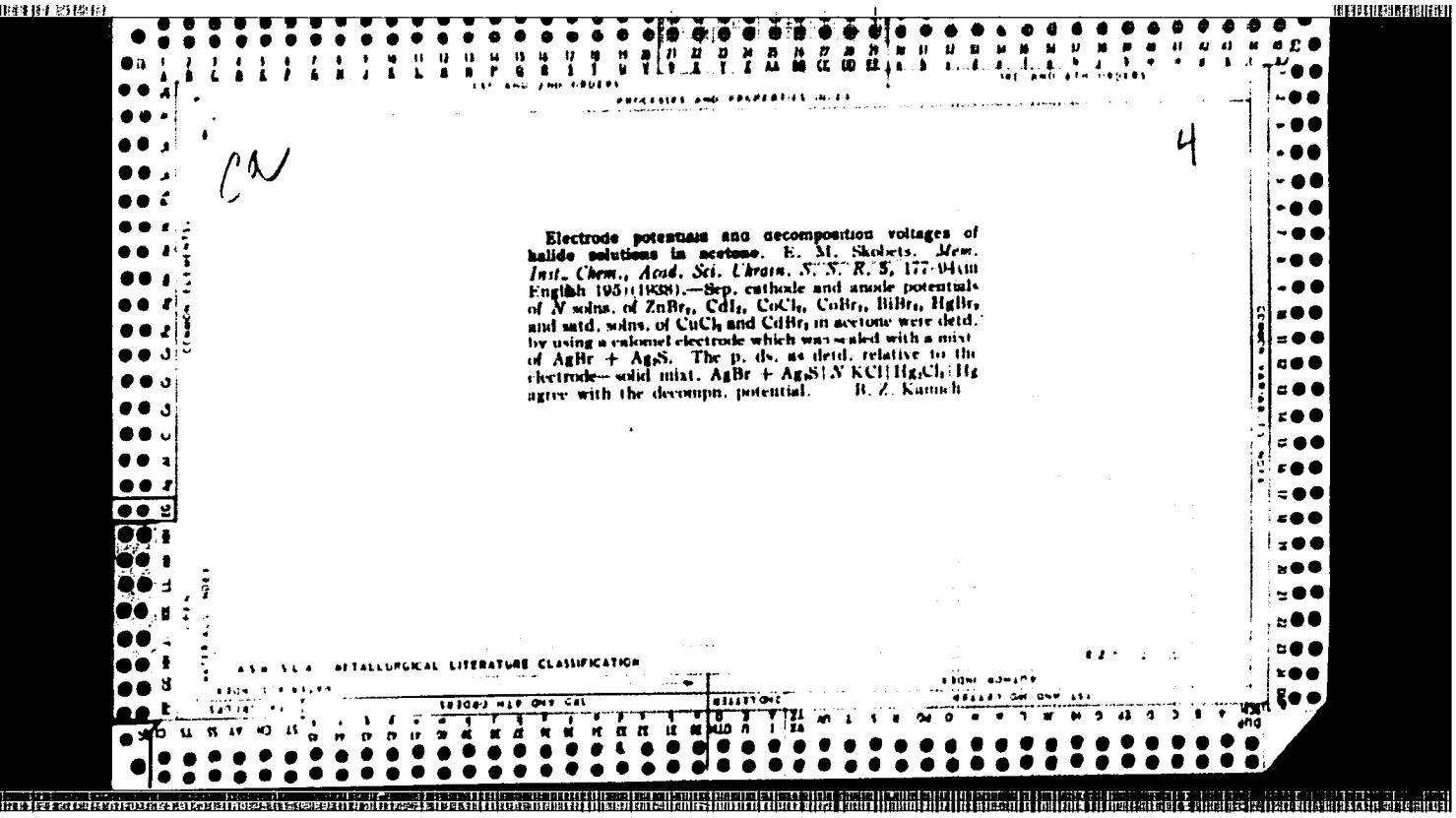
3RD AND 4TH ORDERS

BC

A-1

Decomposition potentials of metallic chlorides and bromides in $SnCl_2$ and $SnBr_2$ as solvents. V. A. IBRIKOV and E. M. SKOBETS (Mem. Inst. Chem. Ukrain. Acad. Sci., 1957, **4**, 85—99).—Low vals. found for the decomp. potentials of halides in solution in Sn^{II} halides are due to depolarisation at the anode by formation of $SnCl_4$ or $SnBr_4$. The orders found are: Sn, Co, Cu, Ni, Ag, Bi (in $SnCl_2$) and Sn, Cu, Ag, Co, Ni, Bi (in $SnBr_2$). The vals. for pure $SnCl_2$ and $SnBr_2$ agree with those calc. from the heat of formation when allowance is made for depolarisation. F. J. G.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

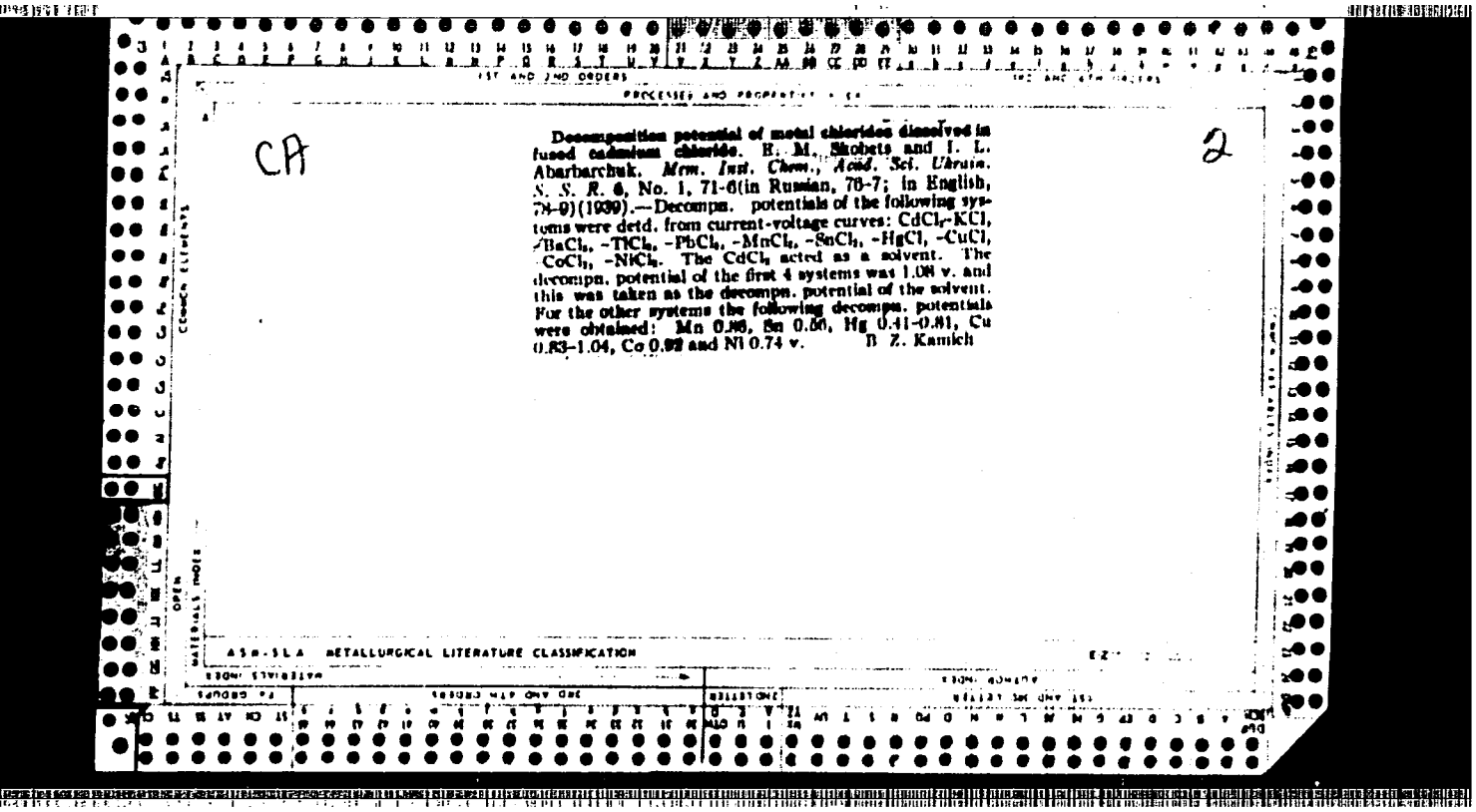


CA

4

Electrode potentials and decomposition voltages of halide solutions in acetone. E. M. Skobets. *Mem. Inst. Chem., Acad. Sci. Ukrain. S.S.R.* 5, 177-94 (in English 195) (1938).—Sep. cathode and anode potentials of *N* solns. of $ZnBr_2$, CdI_2, $CoCl_2$, $CoBr_2$, $BiBr_3$, $HgBr_2$ and satd. solns. of $CuCl_2$ and $CdBr_2$ in acetone were detd. by using a calomel electrode which was coated with a mixt. of AgBr + Ag_2S. The p. ds. as detd. relative to the electrode—solid mixt. AgBr + Ag_2S|*N* KCl|Hg_2Cl_2|Hg agree with the decompn. potential. B. Z. Kamich

METALLURGICAL LITERATURE CLASSIFICATION

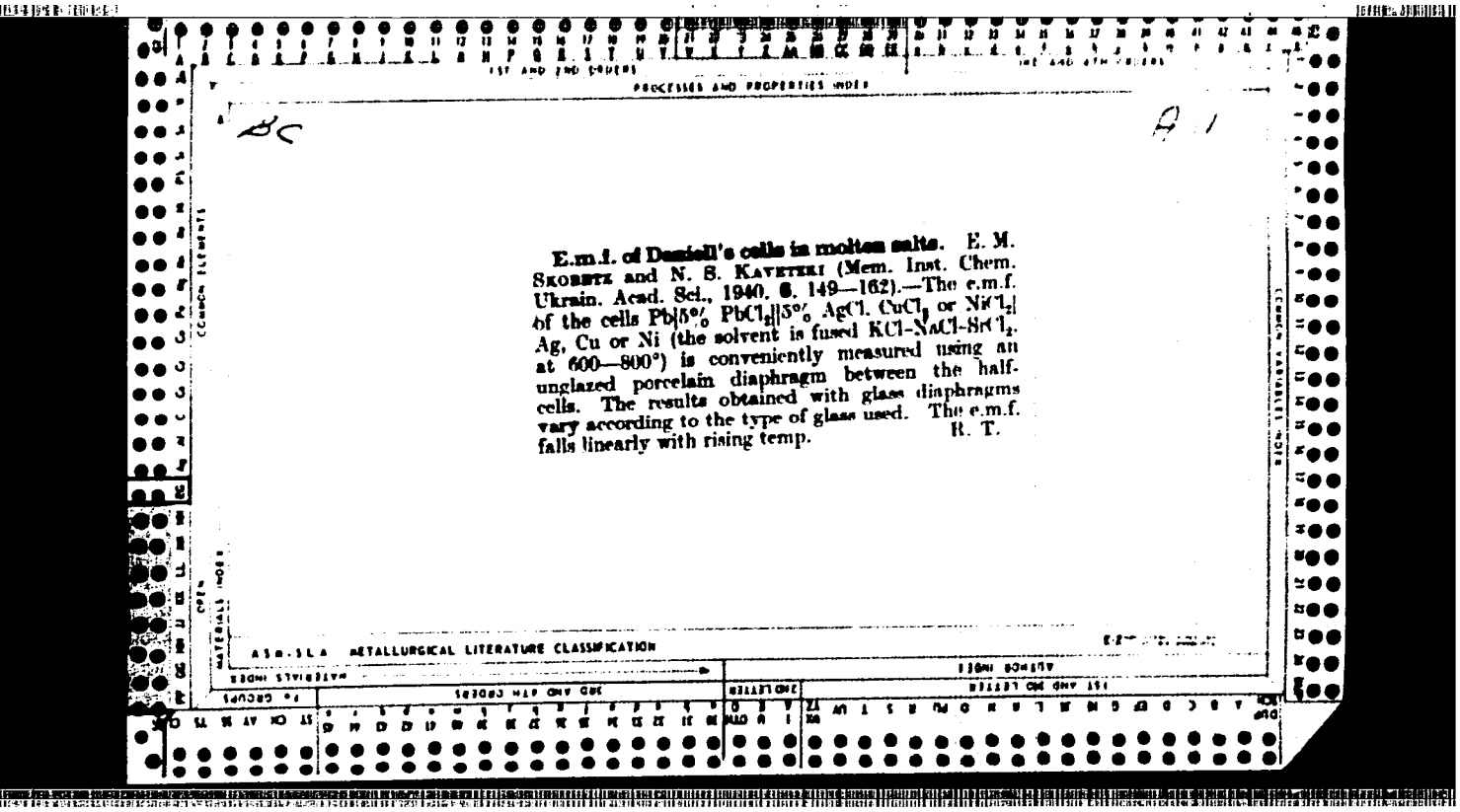


CA

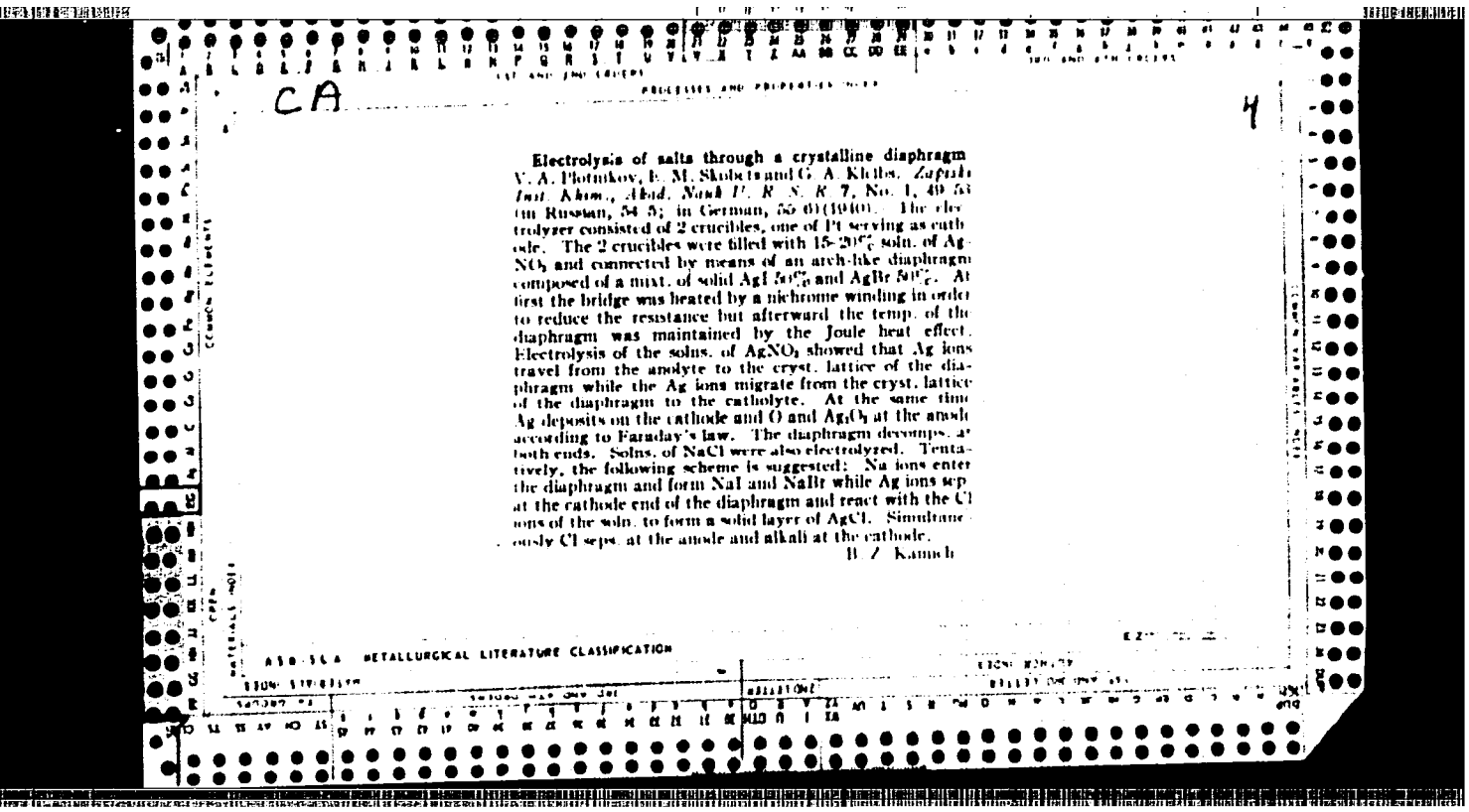
2

Decomposition potential of metal chlorides dissolved in fused cadmium chloride. E. M. Shobets and I. L. Abarbarchuk. *Mem. Inst. Chem., Acad. Sci. Ukraine. S. S. R.* **6**, No. 1, 71-6(in Russian, 76-7; in English, 78-9)(1939).—Decompn. potentials of the following systems were detd. from current-voltage curves: $CdCl_2$-KCl, -$BaCl_2$, -$TlCl_3$, -$PbCl_4$, -$MnCl_2$, -$SnCl_4$, -HgCl, -CuCl, -$CoCl_2$, -$NiCl_2$. The $CdCl_2$ acted as a solvent. The decompn. potential of the first 4 systems was 1.08 v. and this was taken as the decompn. potential of the solvent. For the other systems the following decompn. potentials were obtained: Mn 0.86, Sn 0.50, Hg 0.41-0.81, Cu 0.83-1.04, Co 0.92 and Ni 0.74 v. B. Z. Kamich

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



E.m.f. of Daniell's cells in molten salts. E. M. Skobetz and N. S. Kavetski (Mem. Inst. Chem. Ukrain. Acad. Sci., 1940, **6**, 149—162).—The e.m.f. of the cells Pb|5% $PbCl_2$||5% AgCl, $CuCl_2$ or $NiCl_2$|Ag, Cu or Ni (the solvent is fused KCl–NaCl–$SrCl_2$ at 600—800°) is conveniently measured using an unglazed porcelain diaphragm between the half-cells. The results obtained with glass diaphragms vary according to the type of glass used. The e.m.f. falls linearly with rising temp. R. T.



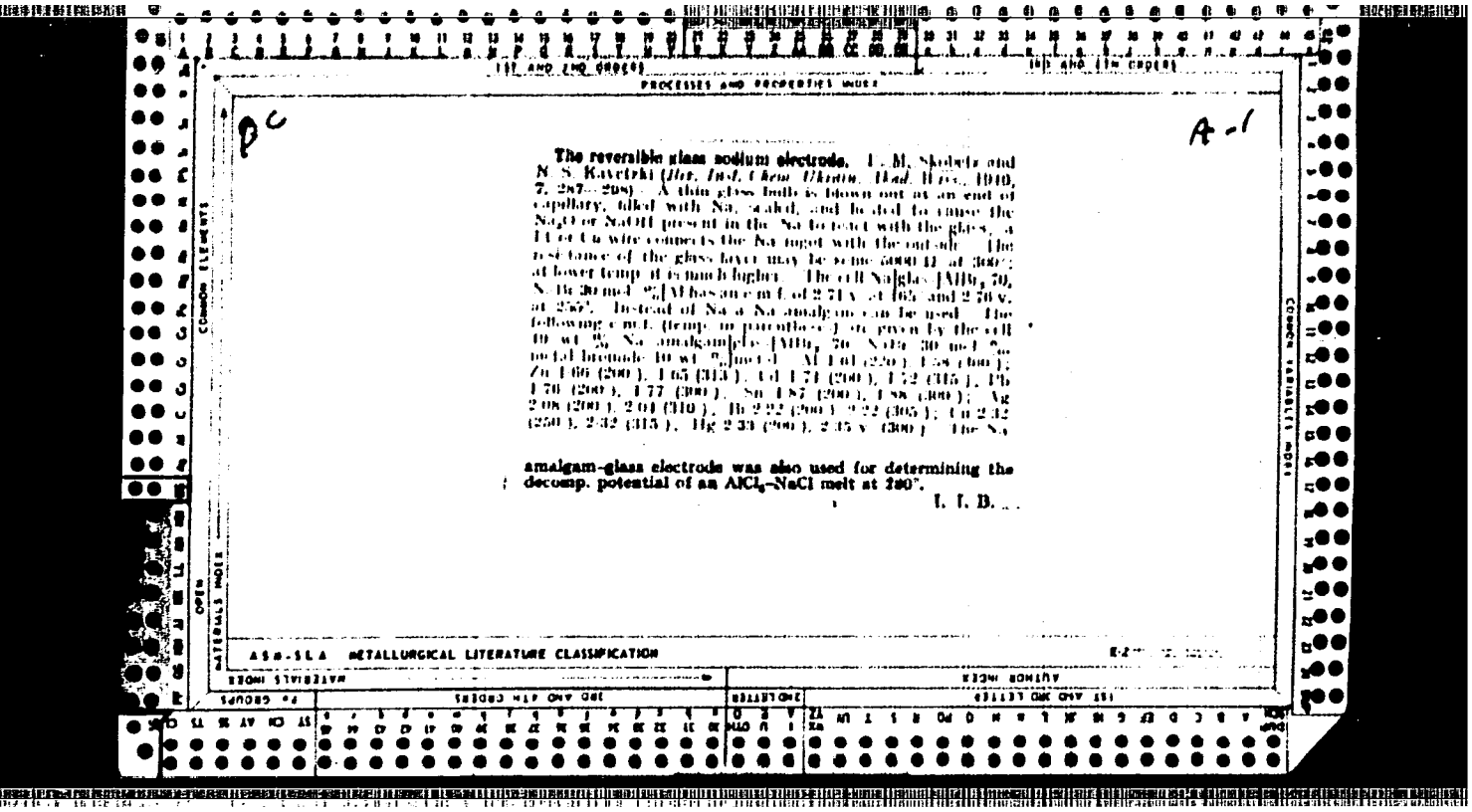
CA

4

Electrolysis of salts through a crystalline diaphragm V. A. Plotnikov, L. M. Skobets and G. A. Klolbs. *Zapiski Inst. Khim., Akad. Nauk U. R. S. R.* 7, No. 1, 49-53 (in Russian, 54-5); in German, 55-61(1940). The electrolyzer consisted of 2 crucibles, one of Pt serving as cathode. The 2 crucibles were filled with 15-20% soln. of $AgNO_3$ and connected by means of an arch-like diaphragm composed of a mixt. of solid AgI 50% and AgBr 50%. At first the bridge was heated by a nichrome winding in order to reduce the resistance but afterward the temp. of the diaphragm was maintained by the Joule heat effect. Electrolysis of the solns. of $AgNO_3$ showed that Ag ions travel from the anolyte to the cryst. lattice of the diaphragm while the Ag ions migrate from the cryst. lattice of the diaphragm to the catholyte. At the same time Ag deposits on the cathode and O and Ag_2O_3 at the anode according to Faraday's law. The diaphragm decomps. at both ends. Solns. of NaCl were also electrolyzed. Tentatively, the following scheme is suggested: Na ions enter the diaphragm and form NaI and NaBr while Ag ions sep. at the cathode end of the diaphragm and react with the Cl ions of the soln. to form a solid layer of AgCl. Simultaneously Cl seps. at the anode and alkali at the cathode.

B. Z. Kamich

ASD-SLA METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

pc

A-1

The reversible glass sodium electrode. I. M. Skolnik and N. S. Kavetski (*Ukr. Ind. Chem. Ukrainy. Mad. Hrsz.*, 1940, 7, 287—298). A thin glass bulb is blown out at an end of capillary, filled with Na, sealed, and heated to cause the Na_2O or NaOH present in the Na to react with the glass. A 14 ct Cu wire connects the Na input with the outside. The resistance of the glass layer may be some 5000 Ω at 300°; at lower temp it is much higher. The cell Na|glass|MBr_3 70, NaBr 30 mol %|Hg shows an emf of 2.71 v. at 165° and 2.50 v. at 256°. Instead of Na a Na amalgam can be used. The following emf. (temp. in parentheses) are given by the cell 40 wt % Na amalgam|glass|MBr_3 70, NaBr 30 mol %, metal bromide 10 wt %|metal: Al 1.61 (220), 1.58 (300); Zn 1.66 (200), 1.65 (315); Cd 1.71 (200), 1.72 (315); Pb 1.70 (200), 1.77 (300); Sn 1.87 (200), 1.88 (300); Ag 2.08 (200), 2.01 (310); Bi 2.22 (200), 2.22 (305); Cu 2.32 (250), 2.32 (315); Hg 2.33 (200), 2.35 v. (300). The Na amalgam-glass electrode was also used for determining the decomp. potential of an $AlCl_3$–NaCl melt at 280°.

I. I. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

BC

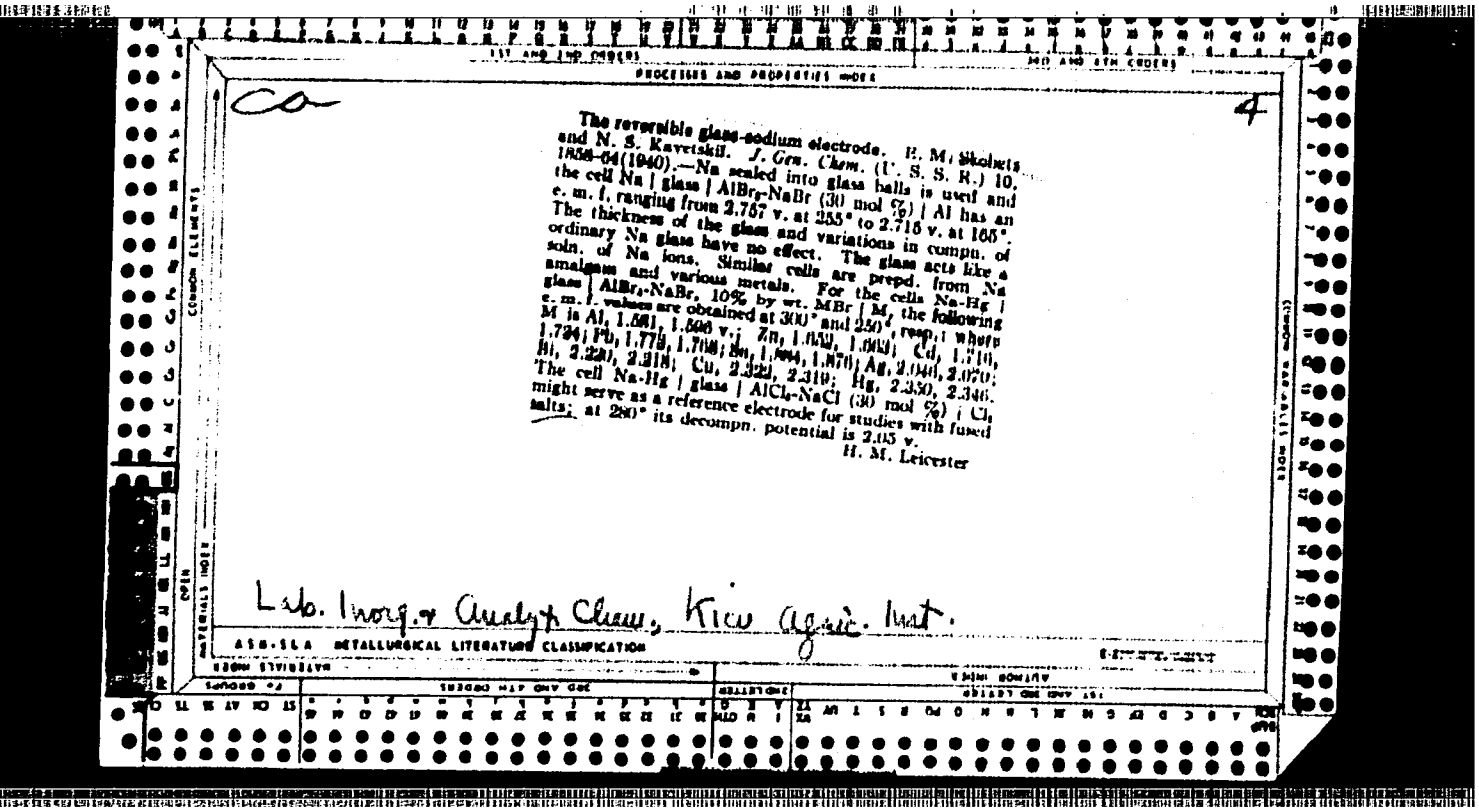
A-1

Indicator electrodes made of mixtures of electrolytically conducting salts. E. M. Skobetz and G. A. Kleiba (*Ber. Inst. Chem. Ukrain. Akad. Wiss.*, 1940, 7, 299—309, and *J. Gen. Chem. Russ.*, 1940, **10**, 1612—1620).—Electrodes were prepared by closing an end of a glass tube with a molten and solidified mixture of AgI with AgBr or Ag_2S; the salt mixture was fixed to the glass with picein. The tube was filled with a KCl or $AgNO_3$ solution, and a Ag|AgCl electrode inserted. The resistance of AgI–AgBr and AgI–Ag_2S mixtures is so small that the e.m.f. of the cells Ag|AgCl|aq. KCl or $AgNO_3$|salt mixture|an aq. solution|saturated Hg_2Cl_2 electrode can be determined using a galvanometer as the null point detector. The arrangement was tested for the titration of $AgNO_3$ with KBr, KI, or KCNS, for the titration of KI with $AgNO_3$, etc. Mixtures of 1 part of AgI and 1 part of AgBr, and of 9 parts of AgI and 1 part of Ag_2S, are recommended. J. J. B.

Indicator electrodes composed of electrically conducting salts. K. M. Shubets and G. A. Klelle. *J. Gen. Chem. (U. S. S. R.)* 10, 1612-20(1940). Diaphragms, prepd. by fusing 50% of AgI, 50% of AgBr and 90% of AgI, 10% of Ag_2S into disks 2 cm. in diam., 3-5 mm. thick, were fastened to glass tubes by means of "picein" rubber cement. A $AgNO_3$ soln. was introduced into the glass tube and a AgCl, Ag or satd. calomel electrode was immersed in the tube. The whole was immersed in the soln. under investigation, which was connected through an agar-agar siphon contg. KNO_3 with a satd. HgCl electrode. The following cells were investigated. Ag AgCl 1 N KCl membrane soln. under investigation satd. calomel soln. (1); Ag.AgCl 1 N $AgNO_3$ membrane soln. under investigation satd. calomel soln. (2); Ag 1 N $AgNO_3$ membrane soln. under investigation satd. calomel soln. (3); satd. calomel soln. membrane soln. under investigation satd. calomel soln. (4). Membranes of AgI(50%)-AgBr(50%) and AgI(90%)-Ag_2S(10%) as well as membranes of pure Ag halides produce sufficiently sharp changes of the potential at the equiv. point and can be used as indicator electrodes for titrating the salts of Ag as well as of halides and thiocyanates. AgI-AgBr and AgI-Ag_2S membranes are superior to membranes from the pure salts owing to their good conductivity. The cell 1 produces a sharper jump at the equiv. point than does the cell 3. Ag electrodes cannot be used in the cell 4. Five references.

H. B. Hann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



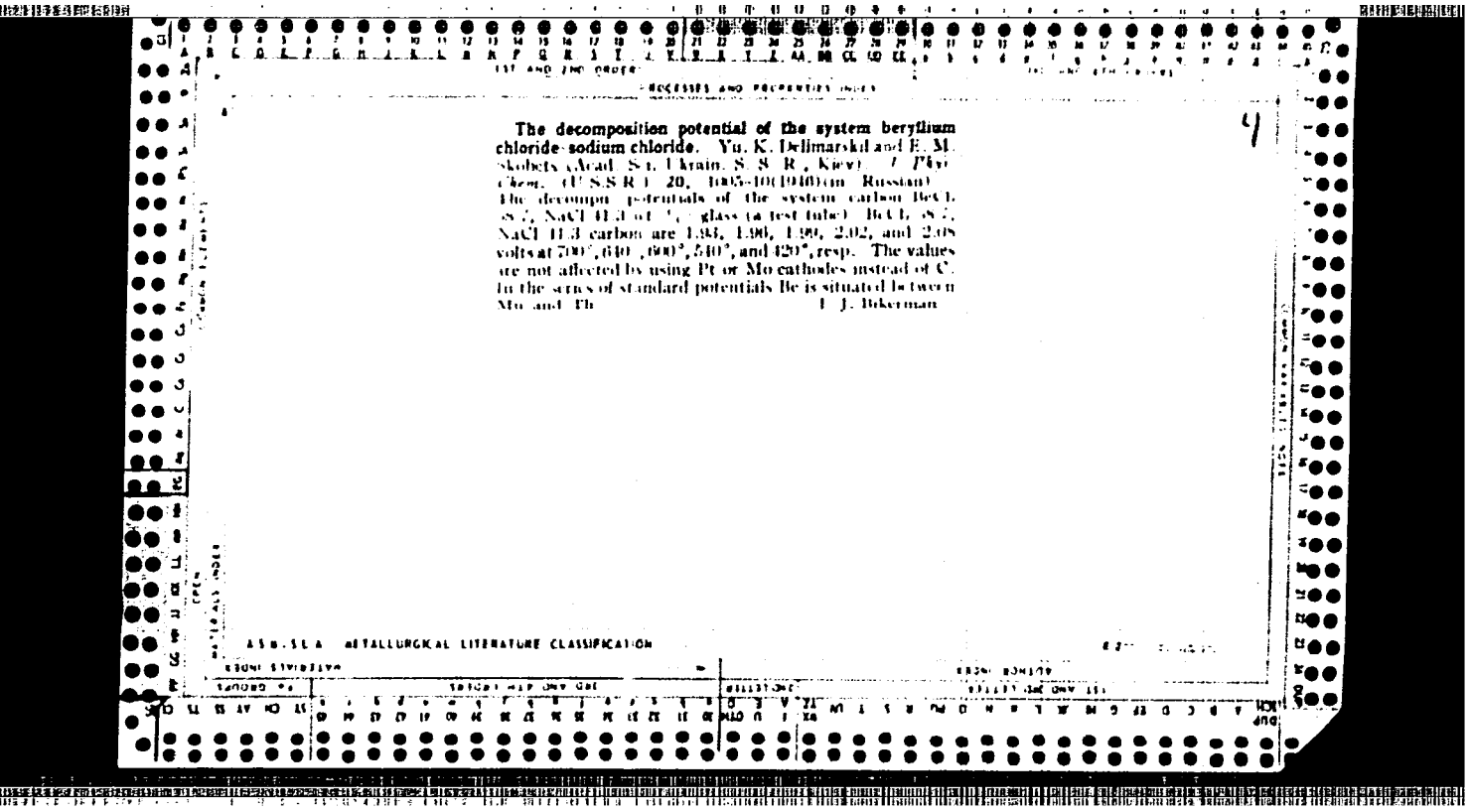
Ca

4

The reversible glass-sodium electrode. E. M. Skobets and N. S. Kavetskii. *J. Gen. Chem.* (U. S. S. R.) 10, 1858–64(1940).—Na sealed into glass balls is useful and the cell Na | glass | AlBr$_3$-NaBr (30 mol %) | Al has an e. m. f. ranging from 2.757 v. at 255° to 2.715 v. at 165°. The thickness of the glass and variations in compn. of ordinary Na glass have no effect. The glass acts like a soln. of Na ions. Similar cells are prepd. from Na amalgam and various metals. For the cells Na-Hg | glass | AlBr$_3$-NaBr, 10% by wt. MBr | M, the following e. m. f. values are obtained at 300° and 250°, resp.; where M is Al, 1.581, 1.566 v.; Zn, 1.853, 1.843; Cd, 1.710, 1.734; Pb, 1.779, 1.768; Sn, 1.804, 1.870; Ag, 2.040, 2.070; Bi, 2.221, 2.318; Cu, 2.322, 2.319; Hg, 2.350, 2.346. The cell Na-Hg | glass | AlCl$_3$-NaCl (30 mol %) | Cl$_2$ might serve as a reference electrode for studies with fused salts; at 280° its decompn. potential is 2.05 v.

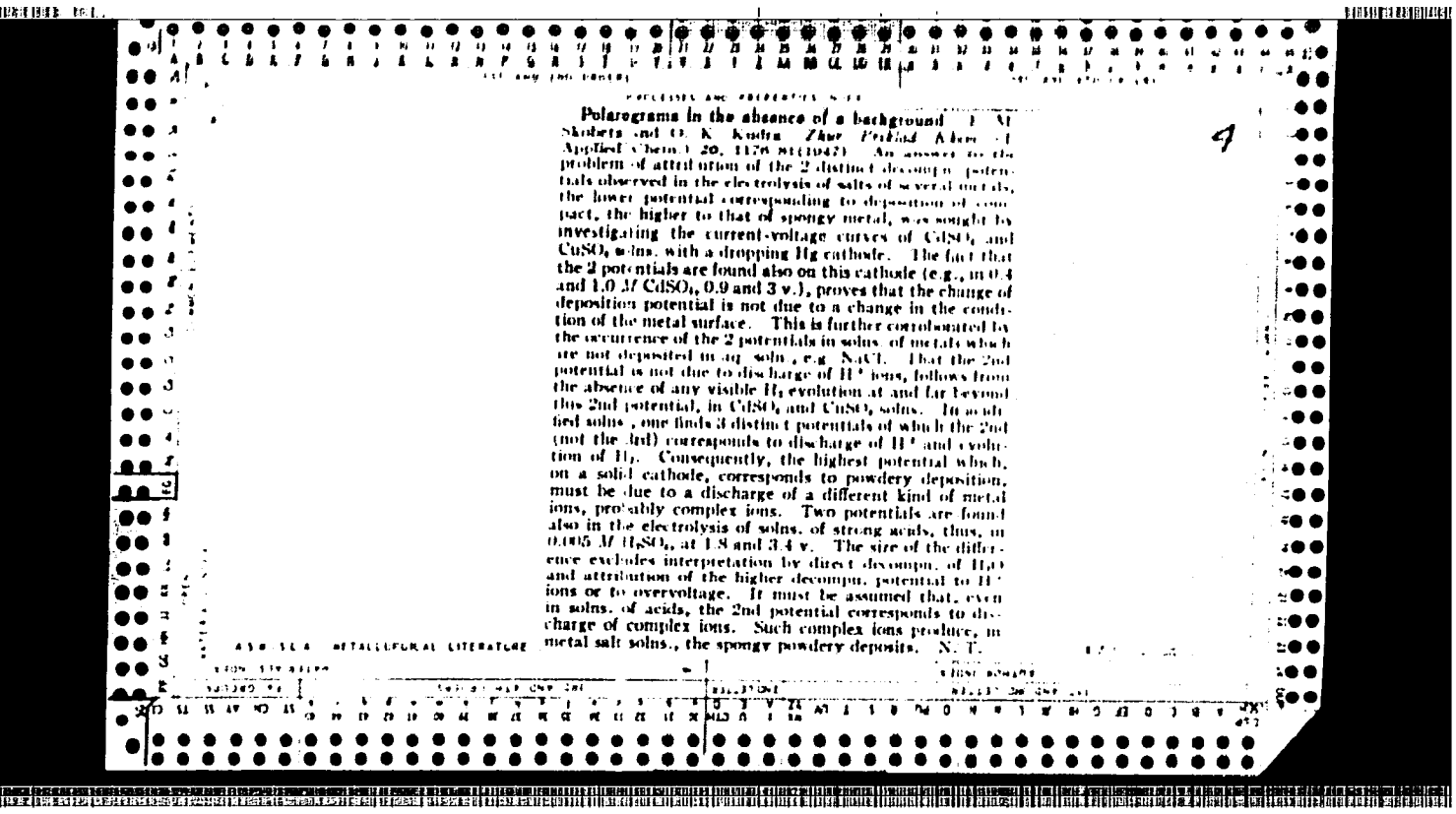
H. M. Leicester

Lab. Inorg. & Analyt. Chem., Kiev Agric. Inst.

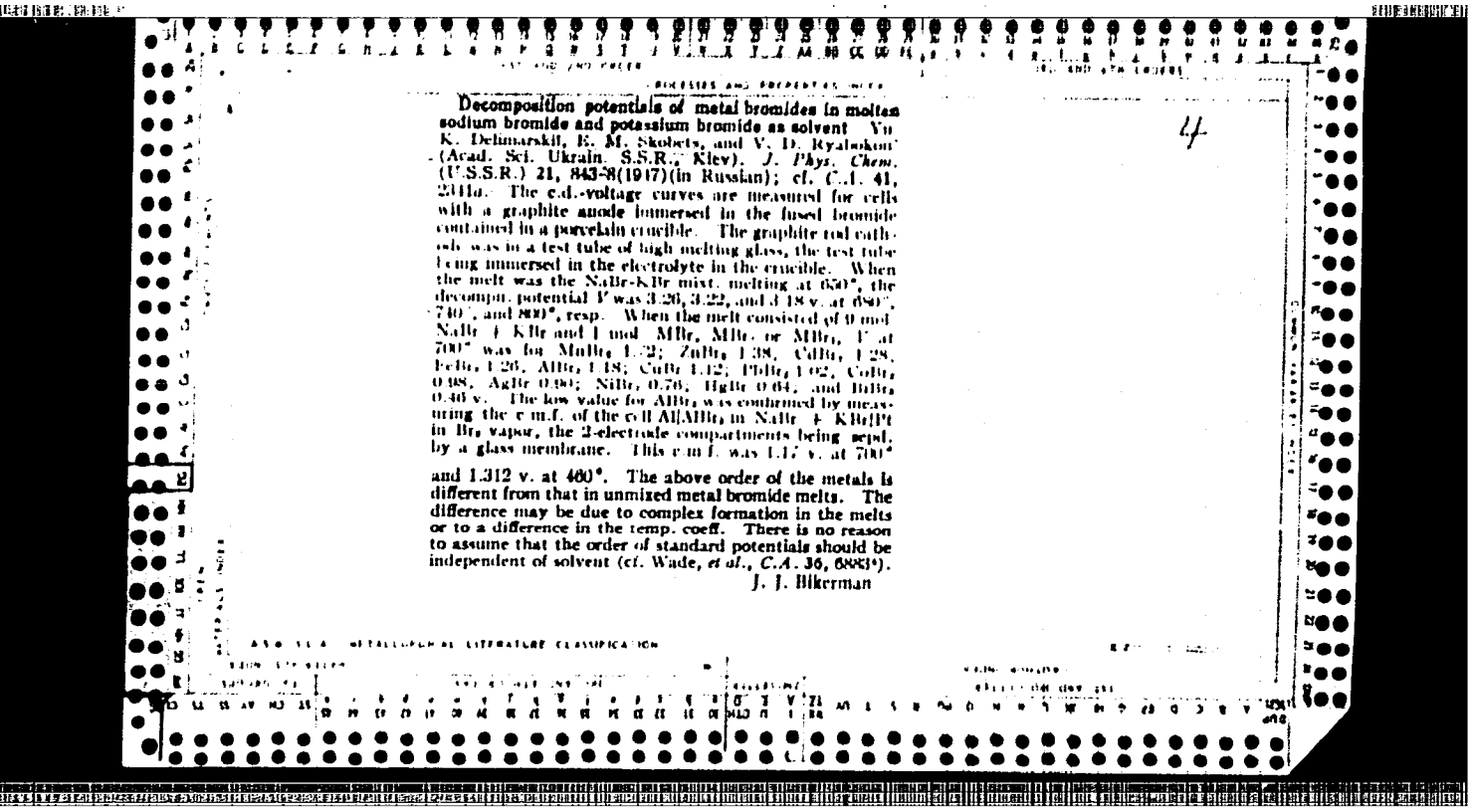


The decomposition potential of the system beryllium chloride-sodium chloride. Yu. K. Delimarskii and E. M. Skobets (Acad. Sci. Ukrain. S. S. R., Kiev). *J. Phys. Chem. (U.S.S.R.)* 20, 1035-100(1946)(in Russian). The decompn. potentials of the system carbon | BeCl$_2$ 35, NaCl 65 | carbon (glass (a test tube) | BeCl$_2$ 35, NaCl 65 | carbon are 1.93, 1.98, 1.99, 2.02, and 2.08 volts at 700°, 640°, 600°, 540°, and 420°, resp. The values are not affected by using Pt or Mo cathodes instead of C. In the series of standard potentials Be is situated between Mn and Th. I. J. Bikerman

Use of solid electrodes in polarography. E. M. Skobets and S. A. Kacher-ova. *Zavodskaya Lab.* 13, 133-7 (1947) (in Russian). Polarograms obtained with both a stationary and a rotating Pt cathode (after Kolthoff and Lingane) were recorded automatically, at 20 revolutions of the drum in 4-4½ min., galvanometer sensitivity 1.6×10^{-9} amp./mm. Under these conditions, no const. current intensity could be attained with the stationary cathode, and the polarograms showed peaks. The current intensities can, however, be evaluated graphically by drawing a horizontal tangent at the min. following the peak and prove to be strictly proportional to the concn. in the instance of $CdCl_2$, from 0.0015 to 0.018 *N*, in 0.5 *N* KCl. Polarograms with rotating cathode have no peaks and permit direct reading of the intensities. A polarogram recorded in the simultaneous presence of Pb, Cd, Zn, Hg is similar to that obtained with the Hg drop cathode. Use of the Pt cathode is indicated particularly for nonaq. solns. and fused salts. Either Pt or Ag can be used as anode. N. Thon

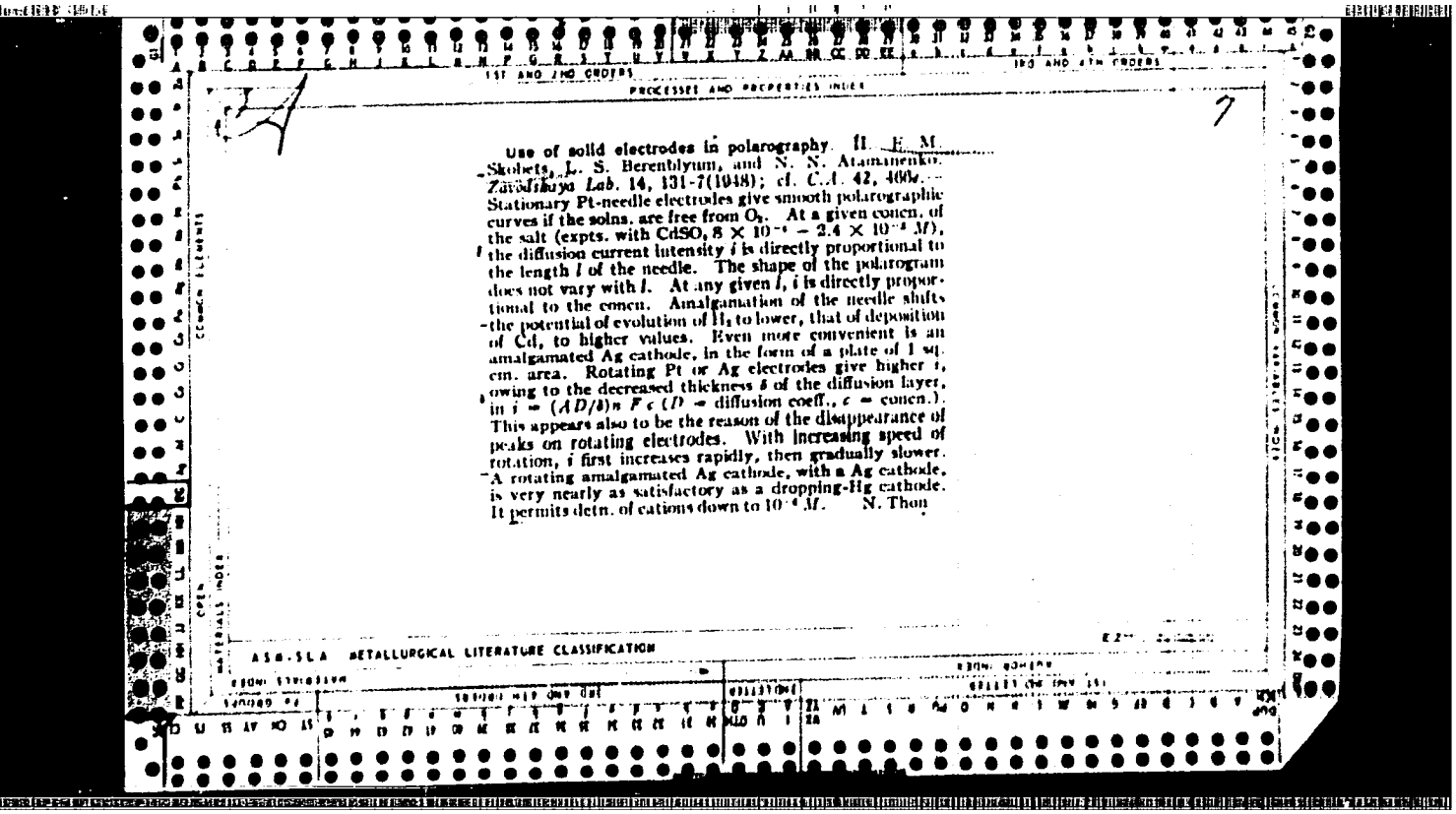


Polarograms in the absence of a background. I. M. Skobets and O. K. Kudra. *Zhur. Prikhl. Khim.* (*J. Applied Chem.*) 20, 1176-81 (1947). An answer to the problem of attribution of the 2 distinct decompn. potentials observed in the electrolysis of salts of several metals, the lower potential corresponding to deposition of compact, the higher to that of spongy metal, was sought by investigating the current-voltage curves of $CdSO_4$ and $CuSO_4$ solns. with a dropping Hg cathode. The fact that the 2 potentials are found also on this cathode (e.g., in 0.4 and 1.0 *M* $CdSO_4$, 0.9 and 3 v.), proves that the change of deposition potential is not due to a change in the condition of the metal surface. This is further corroborated by the occurrence of the 2 potentials in solns. of metals which are not deposited in aq. soln., e.g. NaCl. That the 2nd potential is not due to discharge of H^+ ions, follows from the absence of any visible H_2 evolution at and far beyond this 2nd potential, in $CdSO_4$ and $CuSO_4$ solns. In acidified solns., one finds 3 distinct potentials of which the 2nd (not the 1st) corresponds to discharge of H^+ and evolution of H_2. Consequently, the highest potential which, on a solid cathode, corresponds to powdery deposition, must be due to a discharge of a different kind of metal ions, probably complex ions. Two potentials are found also in the electrolysis of solns. of strong acids, thus, in 0.005 *M* H_2SO_4, at 1.8 and 3.4 v. The size of the difference excludes interpretation by direct decompn. of H_2O and attribution of the higher decompn. potential to H^+ ions or to overvoltage. It must be assumed that, even in solns. of acids, the 2nd potential corresponds to discharge of complex ions. Such complex ions produce, in metal salt solns., the spongy powdery deposits. N. T.



Decomposition potentials of metal bromides in molten sodium bromide and potassium bromide as solvent Yu K. Delimarskiĭ, E. M. Skobets, and V. D. Ryabokon' (Acad. Sci. Ukrain. S.S.R., Kiev). *J. Phys. Chem.* (U.S.S.R.) **21**, 843-8(1947)(in Russian); cf. *C.A.* **41**, 2311a. The c.d.-voltage curves are measured for cells with a graphite anode immersed in the fused bromide contained in a porcelain crucible. The graphite rod cathode was in a test tube of high melting glass, the test tube being immersed in the electrolyte in the crucible. When the melt was the NaBr-KBr mixt. melting at 650°, the decompn. potential *V* was 3.20, 3.22, and 3.18 v. at 680°, 740°, and 800°, resp. When the melt consisted of 9 mol. NaBr + KBr and 1 mol. MBr_n, MBr_2 or MBr_3, *V* at 700° was for $MnBr_2$ 1.72; $ZnBr_2$ 1.38, $CdBr_2$ 1.28, $FeBr_2$ 1.26, $AlBr_3$ 1.18; $CoBr_2$ 1.12; $PbBr_2$ 1.02, $CoBr_2$ 0.98, AgBr 0.90; $NiBr_2$ 0.76, HgBr 0.64, and $BiBr_3$ 0.46 v. The low value for $AlBr_3$ was confirmed by measuring the e.m.f. of the cell Al|$AlBr_3$ in NaBr + KBr|Pt in Br_2 vapor, the 2-electrode compartments being sepd. by a glass membrane. This e.m.f. was 1.17 v. at 700° and 1.312 v. at 480°. The above order of the metals is different from that in unmixed metal bromide melts. The difference may be due to complex formation in the melts or to a difference in the temp. coeff. There is no reason to assume that the order of standard potentials should be independent of solvent (cf. Wade, *et al.*, *C.A.* **36**, 6883⁹).

J. J. Bikerman



PROCESSES AND PROPERTIES INDEX

Use of solid electrodes in polarography. II. E. M. Skobets, L. S. Berentshtyun, and N. N. Atamanenko. *Zavodskaya Lab.* 14, 131-7(1948); cf. C.A. 42, 4096. Stationary Pt-needle electrodes give smooth polarographic curves if the solns. are free from O_2. At a given concn. of the salt (expts. with $CdSO_4$, $8 \times 10^{-4} - 2.4 \times 10^{-3}$ *M*), the diffusion current intensity *i* is directly proportional to the length *l* of the needle. The shape of the polarogram does not vary with *l*. At any given *l*, *i* is directly proportional to the concn. Amalgamation of the needle shifts the potential of evolution of H_2 to lower, that of deposition of Cd, to higher values. Even more convenient is an amalgamated Ag cathode, in the form of a plate of 1 sq. cm. area. Rotating Pt or Ag electrodes give higher *i*, owing to the decreased thickness δ of the diffusion layer, in $i = (AD/\delta)nFc$ (*D* = diffusion coeff., *c* = concn.). This appears also to be the reason of the disappearance of peaks on rotating electrodes. With increasing speed of rotation, *i* first increases rapidly, then gradually slower. A rotating amalgamated Ag cathode, with a Ag cathode, is very nearly as satisfactory as a dropping-Hg cathode. It permits detn. of cations down to 10^{-4} *M*. N. Thon

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

C/

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Use of solid electrodes in polarography. III. F. M. Skobets, P. P. Turov, and V. P. Rvabokon. *Zavod. Lab.* 14, 772-7 (1948); cf. *C.A.* 43, 8016f. A simplified, hand-operated polarograph was used in the expts. Current-time curves were obtained of soln. of 1.5×10^{-4} *M* $CdSO_4$ in 0.1 *M* KCl, without purging the soln. The solid microcathode was made of Ag wire with a globule brazed to the end; the Hg layer in the bottom of the vessel served as the anode. Prior to the expt. the cathode was amalgamated by dipping in Hg. Each new expt. started with a definite const. condition of the electrode surface and of the soln. around it by depolarizing the electrodes and thereby eliminating the effect of previous polarization. In some tests, the Ag cathode was replaced with a Hg drop. Results were the same in both cases. For a stationary cathode, the current value dropped after an initial rise; for a rotating cathode, the current value was maintained. Results indicate that the chief factor in stabilizing the current is the movement of the soln. next to the electrode, as a result the diffusing process occurs in very thin near-electrode layers. Only with sufficient rotation speed (about 3000 rpm.) is it possible to retain on the surface of the solid electrode the most of a less thin near-electrode layer. Current-time curves for "max." currents (current was recorded each time for a completely renewed electrode) were obtained of soln. of 2×10^{-4} *M* $CdSO_4$ in 0.1 *M* KCl with stationary Pt needle as cathode and Hg layer in bottom of vessel as anode. Results indicate that the polarographic wave can be constructed either from high readings of the galvanometer needle or from low readings obtained by prolonged waiting (LeBlanc method). The greater wave height in the first case indicates that the limiting current develops in the very thin near-electrode layers which are formed within a period of 4-5 sec. which is close to the period of life of one drop. This mechanism of current development is supported by shapes of current-voltage curves (*C. A.* 42, 1006, 43, 8016f.). D. Z. K.

SKOBETS, YE. M.

USSR/Chemistry-Polarography, In Industrial Laboratories — Feb 48

Chemistry-Polarography, Electrodes in

FA 4/49T10

"The Use of Rigid Electrodes in Polarography" Ye. M. Skobets, L. S. Berenblyum, N. N. Atamanenko, Gen and Inorg Chem Inst, Acad Sci USSR, 7 pp

"Zavod Lab" Vol XIV, No 2 · Pp 1307-17

Rigid electrodes give better reproduction than the usual mercury-drop electrodes. Describes experiments with stationary and rotating rigid electrodes, with reproduction of polarograms obtained. During automatic registering of current-voltage curves with

4/49T10

USSR/Chemistry-Polarography, in Industrial Laboratories (Contd) — Feb 48

rigid electrodes, attention should be paid to complete removal of oxygen from the solution. Shows that with solid-needle electrodes, increase in wave height is directly proportional to surface area, and that shape of current-voltage curve is similar for small and large electrodes. Discusses effect of surface amalgamization. Rotating electrode has advantage of enabling diffusion current to be increased.

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